

C
P386K
1916

THE UNIVERSITY BULLETINS

SEVENTEENTH SERIES: No. 1, Part 4

UNIVERSITY OF ILLINOIS LIBRARY

DEC 7 1916

University of Pennsylvania

PROCEEDINGS

OF

COMMENCEMENT

JUNE 21, 1916



Founded 1740

PHILADELPHIA:
Published by the University
October, 1916

BI-MONTHLY

Entered at the Philadelphia, Pa., Post Office as Second-Class Matter

Publications
OF THE
University of Pennsylvania

PROCEEDINGS
OF
COMMENCEMENT

JUNE 21, 1916



Founded 1740

PHILADELPHIA:
Printed for the University
October, 1916



Digitized by the Internet Archive
in 2013

PROGRAMME



Procession

Graduating Classes, Deans and Members of Faculties.
Members and Guests of the Corporation, Chaplain,
Orator of the Day, the Vice-Provost and the Provost.

Invocation

THE REV. ROBERT JOHNSTON, D.C.L.
Chaplain of the Day.

Hymn—"Our Father in Heaven"

Introduction

THE PROVOST OF THE UNIVERSITY.

Oration

PROFESSOR BLISS PERRY, L.H.D., LITT.D., LL.D.

Hymn—"Hail, Pennsylvania"

Conferring of Honorary Degrees

Conferring of Degrees in Course

Charge by the Provost

Presentation of Portrait of Dr. Harrison.

Hymn—"America"

Benediction

THE CHAPLAIN OF THE DAY.

HONORARY DEGREES

Master of Laws

MARGARET CENTER KLINGELSMITH

Master of Arts

HERBERT SHERMAN HOUSTON

Doctor of Letters

HORACE HOWARD FURNESS, JR.

Doctor in Chemistry

DANIEL LINCOLN WALLACE

Doctor of Laws

BLISS PERRY

CHARLES KARSNER MILLS

SAMUEL BLACK MCCORMICK

DEGREES IN COURSE

Bachelor of Arts

IN ARTS AND SCIENCE

Francis Heed Adler
Edward Russell Anschütz
Franklin Atlee
George Elmer Boswell
John Russell Breiting
Walter Joseph Burke
Paul Reider Daugherty
*Robert Dechert
Sample Bouvard Forbus
Thomas Albert Foulke
*Bernard Louis Frankel
Edward Benjamin Goward
Elwood Lindsay Haines
Francis Lieber Harley
Thomas Hart
Edgar Ogden Holden
Henry Howard Houston, 2nd
Earle Marshall Humphreys
*Jacob Abraham Kaplowitt
Carl Henry Karsch
Philler Lee
Arthur Littleton
Edward Baldy Watson, Jr.

Martin Bernard Miller
Lawrence Corlies Murdoch
*Paul Howard Musser
Boyd Nelson Park, Jr.
Wilfred Alan Pendleton
George Wharton Pepper, Jr.
William Harvey Reeves
Raymond Alexander Robinson
Harold James Ryan
Frederick Sewall Schofield
Douglas McKain Scott
Donald DeWitt Shearer
Joseph Smith
Ralph Souder, Jr.
Eugene Henry Southall
Morton Leslie Stern
*Harold Saeger Stine
*Emil Thorsch
Arthur Maurice Tomey
Park Barr Turner
Joseph Russell Umsted
George Van Buskirk
Harold Morrison Weil

IN COLLEGE COURSES FOR TEACHERS

Lydia Katharine Adams
Beatrice Barrington
Ruth Spies Bishoff
Maud Hamilton Guthrie
*Anna Wilson Hanna
Katherine Harkness

Mary McCloskey
Anna Martin McGarrity
Virginia Lois Phillips
Laura Newbold Stackhouse
Alonzo Hamilton Stewart
Re Edwards Williamson
Helen Marie Woodward

Bachelor of Science

IN ARTS AND SCIENCE

Leighton Mercer Brown
Ralph Robert Campbell
*Pedro Guadalupe Quiñones
Carrasquillo
Holstein DeHaven Fox
Abraham Gottlieb
Howard Homer Hildebrand
Preston Buxton Hill
Charles Raymond Hollenbach
Albert Hawley Lucas
Charles Joseph McIntyre
Crawford Clark Madeira

Wayne Marshall
Joseph Gillingham Brearley Molten
Harry Rosengarten Neilson
George Crozer Page
Leighton String Palmer
*Harry Polish
Raymond LaRue Porter
Jules Cecil Robbins
Anthony Rosa
Oliver Herrmann Sabold
Edwin Lanpheare Sewell
Casper Wistar Barton Townsend
Park Weed Willis, Jr.

*With Honors

Bachelor of Science—Continued**IN COLLEGE COURSES FOR TEACHERS**

*Robert James Anderson	Mary Hoffman
*James Alexander Beattie	Marsden Lawley
Melvin Hangey Beidler	Nathaniel Leanness
Helen Milligan Bender	Margery Virginia McGlathery
Lillian E. Bock	Benjamin Mustin
Mary Dempsey	Robert Edwin Orton
Elizabeth Rich Eynon	William Sharlip
Gladys C. Hall	George Russell Tyson

Bachelor of Science in Biology

Katharine Mary Dougherty	William Randolph Taylor
--------------------------	-------------------------

Bachelor of Music

Wilhelmina Octavia Little	Sister Mary Eucharía
Sister Agnes Cecilia Dunn	Sister Mary Immaculé

Doctor of Medicine

John Alexander	Samuel Hill Kohlman
Clayton Farrington Andrews	Henry Adolph Robert Kreutzmann
Kenneth Dayton Allison Allen	James Henry MacDuffie, Jr.
John Hancock Arnett	Goff MacKinnon
John George Archer, Jr.	Reuben Adolphus McBrayer
Joseph Shannon Baird	James Albert Hughes Magoun, Jr.
Paul Wesley Best	Frederick Raoul Mason
Samuel Isett Bloomhardt	Edward Vernon Metcalfe Mastin
Judson Powell Boulware	Milton Valentine Miller
Carl Joseph Bucher	Douglas Power Murphy
Chapin Carpenter	Charles Quay North
Philip Lewis Cook	Jesse E. Packer
William Evert Costolow	James Gibson Pate
William Murray Donovan	Harry Hapeman Patrie
Samuel Darragh Earhart	Albert Berchmans Pavy
Clayton Willard Eley	John Douglas Perkins, Jr.
William Cromwell Ely	Joseph Ashbridge Perkins
Francis Edgerton Evans	Arthur William Phillips
Louis Fleming Fallon	Walter William Propst
Howard Lester Farquhar	Louis Apgar Pyle
Douglas Newton Forman	David Deur Reynolds
Raymond Toot Francis	Floyd Winnette Rice
Anthony Angelo Sebastian Giordano	Thomas Sampson Royster
Albert Wright Greenwell	Roy Lorraine Scott
Carl Samuel Harper	Walter Newton Secord
Ray Russell Hetherington	Frank Alexander Sharpe
Drury Hinton	Herbert Benjamin Shearer
Louis Lyndon Hobbs, Jr.	Robert Shoemaker, 3rd
William George Hoebeke	William Alexander Smith
Henry Kurtz Baumgardner Hufford	Robert Douglas Spencer
Milton Jena	William Daniel Stroud
Fairley Patterson James	Lewis Holmes Swindell, Jr.
Lawrence Jesse Jones	George Kay Tweddel

*With Honors

Doctor of Medicine—Continued

Anthony Joseph Vadala
 Claire Fremont Vale
 Norman St. George Vann
 John Shaw Van Winkle

Arthur David Waltz
 Frank Pattison Werner
 Charles Elmer Yoho
 Myron Albert Zacks

Doctor of Public Hygiene

David Hendricks Bergey
 Dorothy Child
 Mary M. C. Longdon

Baldwin Herman Lucke
 Ralph W. Nauss
 Herman Francis Senftner

Annie Young

Bachelor of Laws

James Henry Beazley
 Louis Blumberg
 Francis Brearly
 James McKinley Brittain
 Paul Milton Brooke
 Francis Shunk Brown, Jr.
 *Heath Steck Clark
 Charles E. Corr
 Franklin F. Dickerman
 George F. Douglas
 Ralph Edward Edenharter
 Joseph Louis Ehrenreich
 *Edward Eisenstein
 *Martin Feldman
 Albert J. Fleming
 Charles Schwab Fluke
 Joseph Charles Gaughan
 Christian Risser Gingrich
 Louis Goldman
 Harry Gottlieb
 W. Russell Green
 Robert Edward Hagen
 John Mickle Hemphill
 Benjamin Boyd Hoar
 William Horenstein
 Harry Muse Jones
 Vernon C. S. Jones
 *Benjamin Moritz Kline
 John Calvin Lang, Jr.
 *Louis Edward Levinthal
 Julius J. Levis
 Thomas Morgan Lewis
 Harold Stern Loeb

Thomas A. Logue
 Edward Paul Loughran
 Francis B. Mallon
 Thomas Johnston Marshall
 Daniel Yeakel Miller
 Samuel Moyerman
 William Herron Mulvihill
 Robert Joseph O'Brien
 Edred J. Pennell
 Howard I. Powell
 Walter Laurance Rodman
 Albert Solomon Rosenberg
 Rupert Clifton Schaeffer, Jr.
 Samuel N. Schnee
 *Lemuel Braddock Schofield
 Harry Barr Schultz
 Jacob Henderson Sherrard
 Thomas Emlen Shipley
 Elmer David Simon
 Moses Joseph Slonim
 Homer Irwin Smith
 Martin G. Stein
 Ralph Straub
 Stephen S. Szlapka
 *Frank King Troutwine
 Paul Conner Wagner
 Howard Kesting Wallace
 Herbert B. Weinberg
 Leo Weinrott
 Aaron Weiss
 Pedro Americo Werneck
 Benjamin Wolf
 *Richard Hay Woolsey

Master of Laws

Samuel Rosenbaum

Samuel Knox White

Bachelor of Science in Architecture

John Lester Armour
 Cornelius Simonson Baker
 Jonathan Mould Bell

Will Alban Cannon
 John Albert Coddling
 Allen Dyer Cornell

*With Honors

Bachelor of Science in Architecture—Continued

Merrill L. Hawkins	George Mifflin Dallas Lewis
Francis Keally	Gus A. Rackel
Paul Kohn	Tillman Scheeren, Jr.
Moses Louis Kroman	Charles A. Scheuringer
	Bruce Chester Wenner

Bachelor of Science in Chemistry

George Griffith Byler	Herman Eilberg
William Harold Cope	Charles Robert Engels
*Edward Crede	Edward Leslie Helwig

Bachelor of Science in Chemical Engineering

John Kenneth Adams	Edwin Francis McGlynn
Charles Layton Allen	Ralph Tilton Pfeil
James Joseph Fitzpatrick, Jr.	Joshua Pusey Eyre Price
Joseph Francis Greene	Isadore Rosenblatt
Ralph Elbert Hughes	Edwin Robert Smiley, Jr.
Watson Kintner	Howard Stoertz
John Wallace Kitts	George Gordon Urquhart
Eugene Kohn	Joseph Anthony Weiger
Frederick Leopold, Jr.	William Zimmermann

Bachelor of Science in Civil Engineering

Stewart Charles Barnett	Frank Waxter Hasson
William Henry Bayles	Edward Atwill Holden
Merrell C. Biernbaum	Benjamin Keyser
Maitland Bottoms	Joseph Francis Luto
Joseph Earle Brightbill	Joseph Ignatius McNichol
Charles M. Brogan	Joseph Anthony Mallon
Robert Buchey Burke	Charles Paul Renninger
Mario de Souza Carvalho	William Frederick Rommell, 3rd
David Penn Chabrow	Andrew Arthur Schoenberg
Davis Jones Cloward	Alden Riekie Sexton
George Moffett Dillingham	Isadore Sigmond
*David Fine	Paul Eugene Sigmund, Jr.
John Samuel Frankenfield	Frank Thomas Tighe, Jr.
Paul Ernest Gonsar	Ralph Edward Young
Walter Burton Greenwood	Conrad Zitzer, Jr.
	Ismael G. Zuniga, Jr.

Bachelor of Science in Electrical Engineering

Aloysius Francis Allwein	Josiah Lippincott Leeds
Luis F. Aznar	John Charles Earle McLennan
Arthur Alexander Cameron	Oliver Howard Paxson, Jr.
Charles Clifton Colby, Jr.	Roger Sherman Powell
Albert de Macedo	Jay Curtis Purple
Clifford Levering Fenton	Alfred Merrill Redding
Robert McCormick Gantert	Jack F. Scheetz
Ralph Cullison Keefer	Roy Lindley Smith
David Shetter Keiser	William Jacob Zimmerman

*With Honors

Bachelor of Science in Mechanical Engineering

Robert Hughes Austin
 George Sands Barker
 Joseph Smith Bennett, 3rd
 William Bispham Black
 Ralph Wherry Bye
 Frank Dana Carvin, Jr.
 Frank Allegre Epps
 Robert Raymond Foley
 Lee Nelson Gulick
 Frank Curry Hamilton
 Edward Day Harris
 David Walter Hopkins

Edwin Olney Jones
 Horace Harry Lockeman
 John Findlay McGonigal
 William Pearse Michell, Jr.
 Jacob B. Ottenheimer
 Max Eugene Seltzer
 William Henry Williams Skerrett
 Charles Sprague Tomlinson
 Lewis John Truhan
 John Cecil Whitaker
 Willis David Witter
 Ricardo Zapiola Zimmerman

Chemical Engineer

Marshall Miller

Civil Engineer

Vernon Rea Dunlap

Harold Ezra Hilts
 Samuel Isaiah Sacks

Mechanical Engineer

Franklin Forrest Dickerman

Master of Science in Architecture

Paul Millman Hesser, Jr.
 Yosuke Watanabe Nakano

David Supowitz
 Kenneth Curtis Welch

Doctor of Dental Surgery

Luis Enrique Abadia
 John Stafford Allen
 Henry Brackenridge Anderson
 *James Cornelius Angle
 Frederick Probasco Auten, Jr.
 Fred Arthur Baines
 Harold Chipman Balcom
 Henry Ulysses Barber, Jr.
 Frank Thomas Merritt Barnett
 Jay Fred Barth
 Moses Clay Beal
 John Pieffer Bietsch
 Edward Diamant Blackman
 Earle Chatfield Blakeman
 Samuel Herbert Bomenblit
 Harry Elwood Bouden
 Russ Rowe Bouton
 Horacio Bowen
 Vincent Elon Davis Bragg
 Harrison Irving Braley
 Franklin Louis Brickman
 Charles Leslie Burgess

Andrew Leo Burleigh
 *Paul Brown Camp
 Eugene Vincent Cashman
 Esteban del Castillo
 Chester Rathbun Chapman
 Harry Leigh Chapman
 Louis Alvah Cobbett
 Luis Francisco Coll
 George Allen Buckalew Collins
 John Donald Coulter
 Faber Witman Croll
 Louis Braby Cunningham
 *Lawrence Curtis
 George Francis Dalton
 Leland Carlton Davis
 Henry Michael Delehanty
 *Kingsley De Pass
 Hyman Diamond
 Charles Joseph Dolan
 Walter Raymond Dolan
 Frank Dumbleton, Jr.
 Lawrence Joseph Dunn

*With Honors

Doctor of Dental Surgery—Continued

Lester Barclay Dunning	George Charles McMullen
Maurice Nelson Durand	Alan MacLachlan
*Russell Kerley Duxbury	Hyman Mann
Eli Edelman	William Francis Manning, Jr.
LeRoy Massey Ennis	Harry Rogers Meinhardt
Will Duguid Everhard	John Rogers Merrill, Jr.
George Furnan Farkas	Oscar Monroe Mierley
John Henry Farrell	Ernesto Enrique Molina
Benjamin Fiedelbaum	Eudoro Molina
Edwin Reinke Fulford	Ludwig Stephen Molnar
George Bradley Gallien	Mark Edward Morgan
Harold Calvin Gardenier	Arthur Hitchcock Myers
Norman Edwin Gardner	Sidney Clarke Nethersole
Jacob Nathaniel Glückman	Ferdinand Gustave Neurohr
Augustus Turpin Granger	Paul Louis Niquille
William Gerald Griffin	John Croll Nisley
Leon Allison Grigg	Albert Bright Pancoast
Henry Clare Hamilton	Joseph Harold Parsons
Roy Hand	Nathan James Patterson
Ralph Herbert Hankins	Robert Van Patton
Frank Barnfather Hayner	Edward Warren Peaslee
Bryant Elbridge Hazen	Gordon Cadwell Peck
Russell Alger Henry	James Bruce Peeso
Charles Stephen Higgins	Fred Kenneth Phillips
John Jacob Hillsley	John Polensky
Willard Joseph Hollingshead	George Pollock
Craft Ackerman Hopper	Robert Emmett Price
Claude Newell Hudson	Conrad Joseph M. Raker
John Clifford Hughes	Fred Gustave Reitzel
Wilson G. Hunt	Eugene Francis Rockafeller
Edwin Frederick Husa	Earle Roosa
Milton Edison Husted	Maxwell Jack Rosenthal
M. Edmundo Icaza	David William Roth
Francis Meredith Jaquish	Morris Ruberg
Karl Jiencke	Charles Aloysius Ruddy
Ernest Charles Johnson	Clifford Rudine
*Maxwell James Johnstone	Adolph Rupp
Daniel Jutton	Charles Frederic Ryan
Howard Edward Kane	Edwin Elmer Saunders
Omar W. Kauffman	Nathaniel Harris Schechter
Albert Knox	John Eibe Schmidt
Ernesto Julio de Lacerda	Wallace Bloomfield Searles
Walter Tabor Lahey	Charles Joseph Aloysius Shannon
Alfred William Landrigan	Clark Alexander Sheakley
Fritz Ernst Ledermann	Eduardo Sierra
Matthew Henry Lee	David Michael Simonetti
Raul Leite	Samuel Slaff
Emile Lambert Joseph Lejeune	John Smith
Reuben Lenzer	William Louis Smith
Joseph Levenson	Howard Hemsath Solomon
Augustus Robert Lippert	Albert Francis Sontheimer
Martin McCann	Maurice May Stern
Patrick James McDonnell	Eugene Everett Stout
William Herbert McElnea	Samuel Edwin Swartzberg

*With Honors

Doctor of Dental Surgery—Continued

Eugene Alfred Tagman	Leslie Walker
George Pryor Thomas	Richard Joseph Walsh
William Raymond Thomas	William Reading Webb, Jr.
Raymond Henry Thomasmeyer	William Weiser
Walter Wesley Treichler	Melville Horton Westcott
Michel Raphael Van Aerde	Virgil Andrew Widdoes
James Lawrence Vanderbeek	Percy Williams
Antonio Vazquez	Joseph Wolf
Carl William Verheyen	Louis Wolf
Seishin Yoshizaki	

Bachelor of Science in Economics

Frederick William Adams	*Frank Robert Geis
Vernon Franklin Adkin	Ralph Alvin Gibbs
Stanley Garner Allen	Bernard Sigmund Gomprecht
Alfred Edgar Andrews	Maurice Gootman
James C. C. Avery	*William Duncan Gordon
Joseph F. M. Baldi, 2d	Robert Merritt Gotham
Alexander Balfour	Ernest Curtis Gould
Daniel Turner Balmer	Harold Suhler Goulson
William Kennedy Barclay, Jr.	Loyal Young Graham
Charles Alphonso Barrett	Horace Thorn Greenwood, Jr.
*Samuel J. Becker	Elbert Black Griffith
Paul Theodore Beisser	Lester Capell Guenther
Richard B. Bevier	Harris Allen Hamlin
William Ernest Blackwood	Gordon Alwood Hardwick
Jackson Blank, Jr.	Walter Samuel Hare
Harold John Bowman	Hassan-Ali-Khan
Robert Thomas Boyd, Jr.	James Taylor Hawthorne
George Clarence Brosius, Jr.	Irving Blake Haynes
William Thomas Buck	Carl Goeres Hayssen
George William Burns	Harry Roosevelt Heins
Luther Roy Campbell	Russell Albert Hicks
LeRoy Northrop Castor	Robert Leonard Hooven
Mann Kong Chau	Amos Long Horst
Philip Wei Chen	*Harold De Ve Howard
William Elbridge Chickering	Harry Thomas Huff
Chi Pang Chow	Leslie Wells Joy
*Frank Bailey Cliffe	Wade William Judge
Herbert Courtney Comstock, Jr.	John Brown Judson, Jr.
Joseph Page Conley	Leon Wetherill Kaufman
Carl Long Coons	Joseph Sellers Kite
Edgar Cope, Jr.	Wilhelm Frederick Knauer
Stephen Howell de Coursey	Joseph Jarrett Knowles
Harry Coggeshall Dodd	George Gartside Kurtz
Claude Walter Dudley	Harold Gordon Lacy
Raymond Thomas Eichelberger	Robert Long Lamkin
George Harrison Eisenhardt	John Scott Lansill
Raymond Eugene Fitzgerald	John Lawson, Jr.
Joseph Flack	Edward Albert Lifson
Addison J. Foster	George Godfrey Lundberg
Arthur Benjamin Friedman	John D. McNaughton
James Henry Gay, Jr.	Chauncey Hubbell McCann

*With Honors

Bachelor of Science in Economics—Continued

Ludo Bent McCrea	Charles Scher
William Edmund McKinney	Lucien Henry Schimpf
Maurice Henry Masland, Jr.	Frederick Carl Schoenhut
Elton Raymond Mead	Arthur Freeland Seaver
James Edwin Meredith	Charles Alexander Service, Jr.*
John Walter Miller	Frank Foster Shannon
Russell Miller	William E. Shmidheiser
Howard Tyrrel Mitchell	James Noble Shryock
*William Claire Moffatt	Edwin Lee Sornborger
David Morris	Harold Cortland Stoker
Philip Norman Nutt	Milton Bernard Stone
Benjamin Viehmann Ogden	Jacques Michael Swaab
Harold Mitchell Osgood	Philip Taber
Hsieh An Pan	Benjamin Sheppard Thorp, Jr.
Roy Leon Parker	Henry Buthfer Valieant
Charles Duke Pearce, Jr.	*Eugene Wolgamuth Wall
Calvin Philips, Jr.	Arthur Murray Weirick
Harold Covington Pond	Warren MacPherson Wells
Russell Field Prudden	Hamilton Heath Wende
George Franklin Rand, Jr.	Myron Cecil White
Walter Edgar Rankin	Andrew Rovoudt Wight, Jr.
Abner Ratner	Robert Bruce Wilkinson
Harold Axtell Reitz	Charles Edward Williams
*Thomas Tregoning Ridington	William Joseph Williamson
Gordon Lee Rosenthal	Edward Ross Wilson
Simon Henry Rosenthal	William Mason Wright, Jr.
*Felix Rothschild	Max Lewis Young, Jr.
Fred J. Rummel	Benjamin Yulsman
Edward Clarendon Russell	Kwang Tuk Irving Zee
Charles Leo Sayers	David Louis Zimmerman

Doctor of Philosophy

Ralph Harrub Blanchard	Florence Hulton
Wilton Wallace Blancke	Elisabeth Fuller Jackson
Oswald Frederic Boucke	Arthur Carl Jordan
Estella Eleanor Carothers	John Robert Kline
Frederic Anthony Child	Edward Bell Krumbhaar
Arabel Wilson Clark	Eleanor Larrabee Lattimore
Charles Holloway Crennan	Anna Lane Lingelbach
Saladino Vincenzo di Santo	George William McClelland
Harry Dubin	Robert Cecil Moran
Ralph Douglas Fleming	Charles C. Peters
Leonard Peter Fox	Frank H. Reiter
Karl Hartley Fussler	Frank H. Ridgley
John Crawford Grimm	Orland Russell Sweeney
Carl Friedrich Haussmann	Morris Kimble Turner
Edward Hoch Heffner	James Henry Weaver
Lewis Burtron Hessler	Phineas Westcott Whiting
Joseph Bennett Hill	Joseph Henry Willits
Caroline M. Holt	Herman H. Young

Master of Arts

Forrest Edwin Adams	Lyndon E. Ayres
Guy Elmer Albert	Charles Dow Benjamin

* With Honors

Master of Arts—Continued

Conrad J. I. Bergendoff	Richard Hines Lansburgh
Elsa Wilhelmina Berger	Joseph Leswing
Matthew Wilson Black	Elmira Lodor
Alva E. Blackstone	Mary Ethel McQuiston
Edward H. Bonsall, Jr.	Donald M. Marvin
Katherine G. Carpenter	Mary E. Mathews
Francis James Carr, Jr.	Cyrus Albert Middleswarth
Isaac A. Chapman	William Grayson Moore
Samuel L. Chew	Harry Hess Nye
Amy L. Clapp	Homer Allen Obenauf
Wallace Lysinger Danehower	Andrew Park Orth
Frances Darlington	Elisabeth J. Parker
Robert Ewing Dengler	Mary Clagett Patterson
Charles Milton Dudley	S. Howard Patterson
Mary May Elfrey	Anna Beach Pratt
Charles Levans Emanuel	Alice Chase Raine
Sydney A. Farbish	Harry W. Rohrer
Sophie Elizabeth Foell	Ruskin Raymond Rosborough
Sarah Florence Fogelsanger	Carmon Ross
Miriam Alice Franc	James Alvin Russell
Myra Olive Godfrey	Johan Thorsten Sellin
Philip R. Goldstein	James Ambrose Shook
Grace Winter Greene	Henry G. W. Smith
Oliver R. Hartzel	May Smith
Winfield Roscoe Hartzell	Preston Calvin Stringfield
George N. Harward	Edmund Strudwick, Jr.
Charles Strother Henderson	Granville Taylor
Willard Francis Holteen	Max Trumper
Nicholas I. Hourwich	Rexford Guy Tugwell
Douglass Montgomery Johnson	Laura Adelina Ward
John Sibbil Keir	William Edward Warrington
Grover Cleveland Kirk	Paul Lambert White
Edmund Keffer Kline	Alfred Hector Williams
Wilfred Phinehas Kotov	Edwin B. Williams
Frank Henry Kramer	Israel Ziegler

Master of Science

Cora H. Buckwalter	Morris Bernard Fleischer
Ralph E. Cleland	Janet Paterson Jamieson

Doctor of Veterinary Medicine

Victor Ballou	David Devaull Helm, Jr.
George Kehs Bartholomew	Walter Karl Herbott
Peter Benjamin Brown	Vernon Avil Holby
Walter Earl Campbell	Raymond Stephen Huff
Jesse Daniel Derrick	Martin Luther Hutchins
Joseph G. M. DeVita	Wilbur Conrad Kreamer
Herman Elgart	Elias Trostel Lau
Ira Linton Fridirici	Henry Nightingale Lawrence
George Webster Grim	Herbert Frederick Lienhardt
Morgan Lattin Hannahs	Theodore Wilber McCullough
John Gerard Hardenbergh, Jr.	Donald John MacLeod
Drew Sugg Harper	Cacig George Mampreian

Doctor of Veterinary Medicine—Continued

Melvin Kohl Mann	Howard Campbell Rhodes
Harry Mathias Martin	John Valentine Joseph Spielman
Howard Alfred Milo	William Alexander Steinbach
*Joseph Gordon Moon	Isaac Vought Stoll
Chester Clark Neal	George Walter Swanger
William Calvin Nickel	John Alexander Webb
Robert Wallace Pechin	Albert Joseph Welch
Myron Leonard Plumer	Ray Orson Whipple
William Policoff	Edward James Williams
	Emlen Wood

Bachelor of Science in Education

Elizabeth Areté Burns	Katharine Bradford Graves
Alice C. Chapin	Anna Elizabeth Hill
Helen Florence Denny	Sigrid Anna Marie Nelson
Mildred Alice Eckels	*Adele Bertha Urbany

CERTIFICATES, HONORS AND PRIZES**Certificates of Proficiency****IN MUSIC**

Helen Agnes Chew	Elizabeth S. Nevius
Anne Virginia Dickinson	Anna Slemmer Nichols
Earl C. Hammond	Harriet Velma Turner
Louise de Ginther	John Minor Welsh
	Catharine M. Zisgen

IN ARCHITECTURE

Norman Max Arlitt	Joseph Jerome Nadherny
Howard Stanley Atkinson	Jamieson Parker
Earl Kilborn Bishop	Clyde Stair Payne, Jr.
Henry Dandurand Dagit	John Wooler Platt
Charles David	William Russell Souter
Edward E. Eichenbaum	Charles Middleton Talley
Arthur Buchanan Forbes	Earle Bowen Terry
John Frederick George Gunther	Clement Vincent Tillion
Cyril Henry Hebrank	Carl Raymond Traver
Warren David Heinly	James Van Alst, Jr.
Harry Cummings McMullen	Eugene L. Walter
Joseph Kendall Masten	Norman Lee Wilkinson

IN TROPICAL MEDICINE (Partial Course)*Animal Parasitology*

Henry Field Smyth

Pathology of Tropical Medicine

Ralph W. Nauss

Herman Francis Senftner
Annie Young

*With Honors

In Tropical Medicine—Continued

Pathology of Tropical Medicine and Animal Parasitology

William Lehmann

IN BUSINESS PRACTICE AND BANKING

Edward Aloysius Coughlan	Timothy James Harrington
Edward Charles Dubois	Roy Henry Jones
Clarence Rembrandt Haas	Carl Gerth Lehmann
Edmund Cash Pechin	

IN THE EVENING SCHOOL

Eugen Aicher	August Ernst Kunz
J. Nivin Aitken, Jr.	Frank J. Larkin
Craig J. Anné	Frank Harrison Lawley
William Walter Beech	Abraham Judah Leonard
Raymond L. Bitzer	John Ross Logan
Paul Earl Blouch	John Beresford Love, 3rd
Aubrey Lee Brown	John L. O. Maraffi
Samuel J. C. Brown	James Rush McBride
William Henry Brown	James Cyril McGarrigle
William Joseph Butler	Lyle Casper Miller
John Aloysius Clements	Milton Ray Moyer
William Teglar Cole	Raymond W. Myers
Christopher R. C. Custer	Frank Edward Neff
Emil C. Cutler	Howard Dager Openshaw
Melvin Adams Detwiler	Joseph Betts Pope
Joseph Donzé	James Reekie
Edwin Aaron Dornbach	Richard Schlack
Alphonsus Liguori Duffy	Earl Raymond Snedaker
Lewis Maps Evans	Alexander Solo
Edwin Gustav Fiedler	Melvin Ellis Southard
Herbert Eli Fitzgerald	Charles Goble Stockholm
George Durgin Greene	Stanley Munro Swartley
William Edmond Hammill	John Tait
Frank O. Hancock	John Henderson Talley
Jacob Carol Harveststraw	Horace F. Townsend
Max Heller	Gordon Doane VanDerzee, Jr.
Harry LeRoy Hilyard	William Hutchings Vankirk
Raymond Paul Kaesshaefer	Clarence L. Wells
William Atkinson Kates	Robert Walter Wythes
Charles A. Kauffmann	William Henry Wythes

H. Stanley Zahn

Honors

SENIOR HONORS

IN ARTS AND SCIENCE

Robert Dechert	Harry Polish
Bernard Louis Frankel	Pedro Guadalupe Quinones
Jacob Abraham Kaplowitt	Carrasquillo
Paul Howard Musser	Harold Saeger Stine
Emil Thorsch	

IN THE COLLEGE COURSES FOR TEACHERS

Robert James Anderson	James A. Beattie
	Anna Wilson Hanna

SOPHOMORE HONORS

IN ARTS AND SCIENCE

Roy Anderson	Henry Jacob Meder
Clifford A. Baldwin	Philip Ormond Milton
Morris Freed	Donald Ewan Montgomery
Oswald Robert Kuehne	Stanley Brilles Rice
Alexander Margolies	Charles Lyon Seasholes

SENIOR HONORS

IN THE WHARTON SCHOOL

Samuel J. Becker	Harold De Ve Howard
Frank Bailey Cliffe	William Claire Moffatt
Frank Robert Geis	Thomas Tregoning Ridington
William Duncan Gordon	Felix Rothschild
	Eugene Wolgamuth Wall

SOPHOMORE HONORS

George Lawrence Amrhein	Theodore Russell Snyder
-------------------------	-------------------------

SENIOR HONORS

IN THE SCHOOL OF EDUCATION

Adele Bertha Urbany

SOPHOMORE HONORS

Anna Louise Butts	Sara Perlman
	Helen Twaddell

SENIOR HONORS

IN THE TOWNE SCIENTIFIC SCHOOL

Edward Crede	David Fine
--------------	------------

SOPHOMORE HONORS

Raymond Theodore Bohn	Will Lawrence Butler
Deane Thomas Finney	Abraham Harry Hirsch
Charles Bernard Irmer, Jr.	Louis William Mahle
	Nathaniel Leonard Shaffer

Prizes

IN THE COLLEGE

I.

FRESHMAN ENTRANCE PRIZES

1. A Prize of fifty dollars, endowed by the Class of 1880, for the best special examination in Mathematics by a candidate for admission to the course in Arts and Science. To WILLIAM HERMAN ALOYSIUS BOERCKEL.

II.

PRIZES FOUNDED BY ORGANIZATIONS.

1. THE HENRY REED PRIZE, founded by the Society of the Alumni (College), for the best English Essay by a member of the Senior Class, College, Wharton and Towne Scientific Schools, entitles the successful competitor to one year's interest on six hundred dollars. To EMIL THORSCH.

2. A prize for the best Latin Essay by a member of the Graduating Class (College), founded by the Society of the Alumni (College), entitles the recipient to one year's interest on one thousand dollars, the award to be made by a committee of the society. To EDWARD BENJAMIN GOWARD.

3. The Philadelphia Group of the Alliance Francaise, established in 1904, awards annually a medal to the student of either the Junior or Senior classes who has done the most meritorious work in French over and above the required courses. To PASQUALE SENECA.

4. JUNIOR ORATION PRIZES.—Prizes founded by the Society of the Alumni (College) for the best and second best original declamation by a member of the Junior Class; the first prize of twenty-five dollars, and the second prize of fifteen dollars. First prize to HERBERT CHARLES RAFFETO (College). Second prize to YUEH LIN CHIN (Wharton School). Honorable mention to ELLIOTT LESTER LIEBMAN (College).

5. The Sigma Iota Fraternity awards annually a Gold Medal to the member of the Junior or Senior Class who has shown the greatest progress in his work in Spanish. To PASQUALE SENECA.

III.

PRIZES FOUNDED BY INDIVIDUALS

1. THE GEORGE ALLEN MEMORIAL PRIZE, founded by Joseph G. Rosengarten, Esq. A prize of twenty dollars offered to the member of the Junior Class taking the Greek course and passing the best examination on the Oration of Demosthenes on the Crown. To DONALD NEWLAND MCKUBBIN. Honorable mention to FRANK HARRY MEAD WILLIAMS.

2. THE GEORGE SCHLEICHER PRIZES.—Under the will of the late George Schleicher, of Philadelphia, the German Society holds in trust

a fund for maintaining in perpetuity prizes to be named after the testator and to be awarded to the best students—of whatever nationality they may be—in the German Language, or German Literature, or both. First Prize of fifty dollars and Medal to ALBERT VORBERG. Second Prize of twenty-five dollars and Medal to MORRIS FREED.

3. THE PHILO S. BENNETT PRIZE, given through the generosity of the Honorable William J. Bryan. The interest on four hundred dollars to be awarded annually for the best essay on The Principles of Free Government. To PEDRO S. QUINONES.

4. THE JASPER YEATES BRINTON PRIZE.—A prize of ten dollars to the member of the Sophomore Class in the College who shall pass the best examination in sight-reading of Greek. To CHARLES LYON SEASHOLES.

5. GREEK COMPOSITION PRIZE.—A prize of ten dollars, established by a member of the Class of 1880, for the best examination by a member of the Freshman Class in the College on Greek Prose Composition with the accents. To MARTIN SHERWOOD JOHNSON, JR.

IN THE SCHOOL OF MEDICINE

THE ALUMNI MEDAL and a prize of \$50.00 is offered by the Society of the Alumni of the School of Medicine of the University, to the member of the Graduating Class who attains the highest general average in examinations. (Only those members of the Graduating Class who have taken the last three years of the course in Medicine at this University are eligible.) To P. W. BEST.

THE DR. SPENCER MORRIS PRIZE.—The annual income, derived from the investment of ten thousand dollars, will be awarded each year to that Medical Student of the Graduating Class who shall pass the best examination for the degree of Doctor of Medicine. To JOHN ALEXANDER.

THE FREDERICK A. PACKARD PRIZE of one hundred dollars is offered by a friend of the University to the member of the Graduating Class who has proven himself to be the most proficient in the course in Clinical Medicine. To JOHN ALEXANDER.

The Professor of Obstetrics offers a prize of an obstetrical forceps to the member of the Graduating Class who furnishes the best report of a case of Obstetrics occurring in the University Maternity Hospital. To JOHN ALEXANDER.

A prize of a completely equipped obstetrical bag is offered by the Professor of Obstetrics to the member of the fourth-year class presenting the best notes on the conferences and clinics of the fourth year in Obstetrics. To A. A. S. GIORDANO, with honorable mention of JOHN ALEXANDER.

DR. A. O. J. KELLY PRIZE FUND.—Founded March 26, 1912, by contributions from friends of Dr. A. O. J. Kelly, deceased. The Kelly Prize

will be given to a member of the Fourth Year Medical Class who has made an especially meritorious report of some clinical observation in his regular University work. To WILLIAM M. DONOVAN, with honorable mention of L. A. PYLE and M. V. MILLER.

CHARLES A. OLIVER MEMORIAL PRIZE.—Founded June 16, 1913, by Dr. Charles A. Oliver. This prize, in the form of a gold medal, will be given to "those students in the Graduating Class in the Department of Medicine who shall annually receive the highest average and pass the best examination in Ophthalmology." To W. G. HOEBEKE.

IN THE LAW SCHOOL

THE PETER MCCALL PRIZE was awarded to LEMUEL BRADDOCK SCHOFIELD, with honorable mention to BENJAMIN MORITZ KLINE, for the highest grades during the three years of his attendance at the Law School.

THE P. PEMBERTON MORRIS PRIZE was awarded to LOUIS EDWARD LEVINTHAL, with honorable mention to EDWARD EISENSTEIN, for the highest grades in the examination in Evidence, Pleading and Practice.

THE AMERICAN LAW BOOK COMPANY PRIZE was awarded to LOUIS EDWARD LEVINTHAL, with honorable mention to LEMUEL BRADDOCK SCHOFIELD, for the highest honor in scholarship for the period of his Senior Year.

The following members of the Class of 1916 graduated *cum laude*:

LEMUEL BRADDOCK SCHOFIELD
BENJAMIN MORITZ KLINE
LOUIS EDWARD LEVINTHAL
EDWARD EISENSTEIN
HEATH STECK CLARK
RICHARD H. WOOLSEY

The following members of the Class of 1916 received Honors for the third year work:

LOUIS EDWARD LEVINTHAL
LEMUEL BRADDOCK SCHOFIELD
BENJAMIN MORITZ KLINE
HEATH STECK CLARK
RICHARD H. WOOLSEY
FRANK KING TROUTWINE
MARTIN FELDMAN

IN THE TOWNE SCIENTIFIC SCHOOL

The Assayers' and Miners' Gangue offers a prize of the value of twenty-five dollars in books or apparatus to Post Seniors in Chemistry or to Seniors in Chemistry (four years course). To EDWARD CREDE.

The Priestley Club, composed of the Alumni of the Chemical Department, offers a prize of twenty dollars each year to the member of the Graduating Class whose work for that year is most satisfactory. To GEORGE GORDON URQUHART.

HUGO OTTO WOLF MEMORIAL PRIZES:

In Chemical Engineering, EUGENE KOHN.

In Civil Engineering, STEWART CHARLES BARNETT.

In Electrical Engineering, CHARLES CLIFTON COLBY, JR.

In Mechanical Engineering, FRANK ALLEGRE EPPS.

THE D. VAN NOSTRAND PRIZE, HUGH BARTLEY FREY.

PRIZE IN ARCHITECTURE—Medal of the American Institute of Architects, to GUSTAV A. RACKEL; Arthur Spayd Brooke Memorial Prize, Silver Medal, to GEORGE M. D. LEWIS; Bronze Medal to G. A. RACKEL; Faculty Prize to BRUCE C. WENNER; Harbeson Prizes, to L. W. STUCKERT, first, and E. L. WALTER, second.

IN THE WHARTON SCHOOL

A prize founded by the PHI KAPPA SIGMA FRATERNITY in honor of their founder, SAMUEL BROWN WYLIE MITCHELL, M.D., of the Class of 1852, for the most meritorious work done in the course in English Composition of the second year. It entitles the successful competitor to one year's interest on four hundred dollars. One-half of above prize to MATTHIAS A. SHAABER.

THE FRAZIER PRIZE.—GEORGE H. FRAZIER, ESQ., of the Class of 1887, offers annually a prize (founded 1897) of a standard work in literature, to be chosen by him, and of a value of one hundred dollars, to the student in the College, Towne Scientific or Wharton Schools of the University of Pennsylvania, who, being a member of the Football team, Baseball team, Track team or of the Crew, shall attain the highest standing in scholarship. To F. J. DORSEY, Wharton, '17.

IN THE GRADUATE SCHOOL

FELLOWSHIP AWARDS FOR 1916-1917.

ON THE GEORGE LEIB HARRISON FOUNDATION.

FELLOWSHIPS FOR RESEARCH.

In Anthropology:

ERNEST WILLIAM HAWKES, B.L., A.M., PH.D., Dakota Wesleyan, 1909; Pennsylvania, 1913, 1915.

In Semitics:

HEINRICH FRIEDRICH LUTZ, Graduate of German Gymnasium, 1904; B.D., Ph.D., Chicago Lutheran Theological Seminary, 1910; Yale, 1916.

In Sanskrit:

WILLIAM NORMAN BROWN, A.B., Ph.D., Johns Hopkins, 1912, 1916.

In History:

JAMES GARFIELD RANDALL, A.B., A.M., Ph.D., Butler College, 1903; University of Chicago, 1904, 1911.

In Mathematics:

JOHN ROBERT KLINE, A.B., A.M., Ph.D., Muhlenberg, 1912; Pennsylvania, 1914, 1916.

In Astronomy:

KRIKORIS GARABED BOHJELIAN, A.B., A.M., Ph.D., Anatolia College, 1907; Pennsylvania, 1914, 1915.

In Zoölogy:

PHINEAS WESTCOTT WHITING, A.B., M.S., Ph.D., Harvard, 1911, 1912; Pennsylvania, 1916.

FELLOWSHIPS.

In Semitics:

CHARLES DOW BENJAMIN, A.B., A.M., Pennsylvania, 1915, 1916.

In Greek:

ROBERT EWING DENGLE, A.B., A.M., Pennsylvania, 1915, 1916.

FRANKLIN P. JOHNSON, A.B., A.M., Missouri, 1914, 1915.

In Latin:

JAMES PLEASANT COOK, A.B., Texas, 1909.

In English:

MATTHEW WILSON BLACK, A.B., A.M., Pennsylvania State College, 1915; Pennsylvania, 1916.

STANLEY S. SWARTLEY, A.B., S.T.B., A.M., Pennsylvania, 1905; Boston University, 1908, 1909.

BRUCE W. McCULLOUGH, A.B., A.M., Indiana, 1914, 1915.

In German:

CHESTER SQUIRE PHINNEY, A.B., Maine, 1911.

KARL WILLIAM HENRY SCHOLZ, B.S., A.M., Pennsylvania, 1911, 1915.

In Romanics:

EDWIN B. WILLIAMS, A.B., A.M., Pennsylvania, 1914, 1916.

In History:

WILLIAM FREEMAN GALPIN, A.B., A.M., Northwestern, 1913, 1914.

RALPH PAUL BIEBER, A.B., A.M., Muhlenberg, 1914; Pennsylvania, 1915.

In Political Science:

DANA GARDNER MUNRO, A.B., Wisconsin, 1912.

In Economics:

GORDON WATKINS, A.B., A.M., Montana, 1914; Illinois, 1915.

In Sociology:

ARTHUR EVANS WOOD, A.B., B.D., Harvard, 1906; Harvard Divinity, 1911.

In Psychology:

FRANKLYN CRESSEY PASCHAL, A.B., A.M., DePauw University, 1911; Pennsylvania, February, 1916.

In Mathematics:

GEORGE H. HALLETT, JR., A.B., Haverford, 1915.

In Botany:

HOWARD H. M. BOWMAN, B.Ph., M.Ph., Franklin and Marshall, 1913, 1914.

RALPH ERSKINE CLELAND, A.B., M.S., Pennsylvania, 1915, 1916.

In Zoölogy:

MITCHEL CARROLL, B.S., Pennsylvania, 1915.

JOSEPH HALL BODINE, A.B., Pennsylvania, 1915.

*SCHOLARSHIPS.**In Latin:*

FRANKLIN ABRAM KULLER, A.B., A.M., Dickinson, 1914, 1915.

In English:

HAROLD SAEGER STINE, A.B., Pennsylvania, 1916.

In Romanics:

JOSEPH ARTHUR MEREDITH, A.B., Lehigh, 1916.

In History:

CHARLES RAYMOND HOLLENBACH, B.S., Pennsylvania, 1916.

In Philosophy:

EARLE MARSHALL HUMPHREYS, A.B., Pennsylvania, 1916.

In Mathematics:

HARRY POLISH, A.B., Pennsylvania, 1916.

In Chemistry:

GEORGE W. BIRCH, JR., B.S., Pennsylvania, 1915.

In Botany:

CHESTER ARTHUR STITELER, B.S., Pennsylvania, 1915.

ON THE HECTOR TYNDALE FOUNDATION.

Fellowship in Physics:

JOHN CLARENCE KARCHER, A.B., Oklahoma, 1916.

ON THE JOHN FRIES FRAZER FOUNDATION.

Fellowship in Physics:

BERNARD FRANCIS DOSTAL, A.B., A.M., Wisconsin, 1914; Indiana, 1915.

ON THE MRS. BLOOMFIELD MOORE FOUNDATION.

FELLOWSHIPS.

In English:

RUTH COONS WALLERSTEIN, A.B., A.M., Bryn Mawr, 1914; Pennsylvania, 1915.

In Chemistry:

SOPHIE ELIZABETH FOELL, B.S., A.M., Pennsylvania, 1911, 1916.

ON THE JOSEPH M. BENNETT FOUNDATION.

FELLOWSHIPS.

In Greek:

HELEN MILLER BLEY, A.B., Bryn Mawr, 1910.

In Latin:

CLARA A. HOLTHAUSSER, A.B., A.M., Pennsylvania, 1914, 1915.

ON THE FRANCES SERGEANT PEPPER FOUNDATION.

Fellowship in Medical Sciences:

MARY M. CHAMBERLAIN, A.B., Bryn Mawr, 1915.

ON THE FRANCES E. BENNETT MEMORIAL FOUNDATION.

Scholarship in English:

MIRIAM ALICE FRANC, A.B., A.M., Goucher, 1915; Pennsylvania, 1916.

TRAVELING SCHOLARSHIPS.

In Chemistry:

ERNEST ALBERT VUILLEUMIER, B.S., Pennsylvania, 1914.

In Germanics:

BENJAMIN FRANKLIN SCHAPPELLE, A.B., Dickinson, 1908.

UNIVERSITY RESEARCH FELLOWSHIPS.

In Sanskrit:

HENRY S. GEHMAN, A.B., A.M., PH.D., Franklin and Marshall, 1909, 1911; Pennsylvania, 1913.

In Romanics:

S. L. MILLARD ROSENBERG, B.S., A.M., PH.D., Pennsylvania, 1907, 1907, 1909.

UNIVERSITY SCHOLARSHIPS.

Thirty University Scholarships have also been awarded.

IN THE VETERINARY SCHOOL

THE J. B. LIPPINCOTT PRIZE of one hundred dollars, which is offered to the member of the Graduating Class who, in the three years spent in the Veterinary School of the University, attains the highest general average in examinations, is awarded to JOSEPH GORDON MOON.

A prize of a veterinary instrument, which is offered by a friend of the School to the member of the second-year class who passes the best examinations in Veterinary Anatomy, is awarded to JOSIAH TUSTIN LITTLE.

IN THE SCHOOL OF EDUCATION

PHI KAPPA SIGMA FRATERNITY PRIZE IN ENGLISH FOR SOPHOMORE COMPOSITION. Divided between H. MORGAN RUTH, JR., School of Education, and MATTHIAS A. SHAABER, Wharton School.

CONFERRING OF HONORARY DEGREES

By the Provost

MARGARET CENTER KLINGELSMITH—Author of authoritative biographies of distinguished jurists—Patient, accurate translator of legal classics, buried in forgotten dialects.

HERBERT SHERMAN HOUSTON—A master in the great world of business, seeking to imbue its votaries with the loftiest ideals in barter and exchange—Publisher and devoted friend of authors, the successes of many of whom are due to your sympathetic cooperation, untiring zeal and keen insight.

HORACE HOWARD FURNESS, JR.—Co-worker with him whose name is indissolubly connected with the undying productions of Shakespeare—Yourself the distinguished, scholarly editor of many of the latter's grandest and noblest dramas, bringing to humanity the sublime lessons which truth sings into the open heart.

DANIEL LINCOLN WALLACE—Because of mastery of intricate chemical analysis—because of persistent and successful effort in the solution of many perplexing problems in chemistry—because of long, cheerful service in the University, ever true to its ideals of character and scholarship—and because of the enthusiastic recommendation of hundreds of appreciative alumni whom you have taught.

BLISS PERRY—Teacher—editor—author, whose charming literary productions, crowned by merit, have won hearty acclaim from students and scholars at home and abroad.

“Truth divine, yet waiting to be known,
Shall unfolded be, revealed by man.”

CHARLES KARSNER MILLS—After forty years of uninterrupted service as teacher in this University, during which period you have won the highest honors in the field of neurology by brilliant investigation and significant contributions to its literature.

SAMUEL BLACK McCORMICK—Christian minister—lawyer—teacher, whose contributions to literature and education have given you place among the first of scholars—chief executive and wise administrator of a sister University, nobly flourishing because of your unselfish labors and watchful care.

“Glad to be in fullest touch with all your human kind.”

PRESENTATION OF PORTRAIT OF DR. CHARLES CURTIS HARRISON.

By John Cadwalader, LL.D.

MR. PROVOST:

I rise by request to place in the care of the University this admirable portrait by Julian Story of Dr. Charles Custis Harrison, who stands today as he has stood for forty years a pillar of support to this great Institution.

It is gratifying to see on this canvas so truthful a picture of the man we know and as he is.

There seems to be a propriety in my being asked to do this service, as my association with Dr. Harrison goes back to his school days, and includes our four years of college life and continues through many close relations to the present hour.

The career of Dr. Harrison forms a fitting text upon which to discuss the influence of collegiate education and what it stands for.

Charles Harrison from early childhood has been a close student, indefatigable and never satisfied unless able to lead efficiently in any work he undertook. At the Episcopal Academy the boys sat in Chapel and classrooms according to their rank. When dismissed they were called to rise in order, one, two, three, etc., class by class and every leader was marked as he headed in single file his fellows. Harrison as I well remember always led his class. In college the ranking was publicly announced every term and Harrison never below third, after the Sophomore year, always stood the first in our class. In this way distinction was shown and rewarded.

Fifty-four years ago on July 3d, twenty-five college men, as we thought ourselves, stood before the then Provost in Musical Fund Hall to receive the degree of A.B. in course. Charles Custis Harrison taking the first honor made the Salutatory address, opening with these words:

ὦ σοφώτατοι θεαταί, χάριν ὑμῖν ἵσμεν ἀνθ' ὧν ἤλθετε ἐν ταύτῃ τῇ ἡμέρᾳ ἵνα θεωροῖτε ἡμᾶς μακρὸν χαίρειν φράζοντας τῇ ἀκαδημίᾳ.

I am afraid they are indeed "Greek" to most of those who hear them today. Then it was not deemed out of place to appeal

to that "most intelligent audience" and "to thank them for coming to see our class bid a long farewell, to the University," in a language educated persons were expected to understand.

I would be glad to give the whole address, for it received the highest praise from that great scholar, Professor George Allen, who inspired us all by his own love for the humanities. Of those twenty-five graduates, twenty were nineteen years old or younger. Harrison was just eighteen. Eight became lawyers, five entered the Church, three stood in the front rank in medicine, two were engineers, one, Dr. Persifor Frazer, a geologist and the first foreigner to receive the honor of a degree from the University of France, one rose to the rank of admiral in the navy, ten saw service on the Northern side in the Civil War, and one served with distinction in the Southern Army and later married in Boston, and became a leader of the Baltimore Bar. Two preceded you as Provost of the University, four have been its trustees, one the secretary of the Board and three held chairs as professors. Of the four who engaged in business, all were successful and not one of the class ever fell by the wayside.

Six months after his graduation, Harrison, who had intended to enter the army and was actually in camp, was urged by his father to return and form a firm to purchase and conduct a great sugar refinery which had not been successful in the hands of its former owners. Thus when only eighteen years old he headed the firm of Harrison, Newhall & Welsh, later Harrison & Havemeyer, and finally Harrison, Frazier & Co. until incorporated as The Franklin Sugar Refining Company, the family being the only stockholders.

The extensive nature of this business may be realized when it is stated that the refinery had an annual capacity of over 600,000,000 pounds of raw sugar. It was probably at that time the largest manufacturing firm in Pennsylvania, if not in the United States.

I had personal knowledge of the extent of this business when as Collector of the Port I received nearly \$8,000,000 a year in duties paid by the firm, which was pure revenue without an ounce of protection in it. The method in their business may be judged by what the Chief Weigher informed me as to the discharge of any cargo consigned to them. He said "not a spoonful of sugar could be scraped from the wharf when their work was completed."

The public have very generally considered Dr. Harrison as a man of great business ability, but have overlooked the intellectual side of his life.

In 1876, when only thirty-two, he was elected a trustee of the University and soon became chairman of the Committee on Ways and Means. In 1892 he retired from business, and two years later his former classmate, Dr. Pepper, resigned as Provost, and Dr. Harrison was unanimously chosen to succeed him.

His sixteen years as Provost produced wonderful changes in the University. No one knows better than you do, Mr. Provost, what the capacities of Dr. Harrison are and how fully equipped he was in every way to meet the demand and needs of a great centre of education.

Those of us who have served with him on the Board saw how quietly he presided and with what precision every matter to be considered was prepared and arranged. There was no delay, every question was promptly answered and all material needed to show facts, inquired into, was always ready and at hand.

He saw the great value of a dormitory system, and all who have visited Oxford or Cambridge know what an inspiration to students, life at a university may be. The beautiful dormitories, designed by the great architects, Cope and Stewardson, under Dr. Harrison's supervision, are in themselves a noble monument to his judgment and indefatigable efforts.

On becoming Provost he resigned directorship on the many boards of banks and other institutions he had filled to devote himself entirely to the great work he had assumed.

The wonderful growth in all departments must amaze anyone who considers the matter. No trustee ever had to inquire as to funds when Dr. Harrison presented any proposal, the only question to be discussed was its wisdom, not its cost, for the trustees knew he had provided the means before he suggested the measure.

In 1895 he established "The George Leib Harrison Foundation for the Encouragement of Liberal Studies and the Advancement of Knowledge" as a memorial to his father, giving \$500,000 to provide for the scholarships.

Modest to a fault and living in a community singularly unmindful of what is due to their great citizens, there are few who have any idea that this great man of business began his career and

continues today to be truly a scholar. His activities have never ceased. Believing that after thirty-six years of service as trustee and Provost he should make way for one whose capacities he knew and whose years could promise continued work in the field so well established, he retired and urged your selection, Mr. Provost, as his successor. Again he made no mistake, and I know he enjoys the satisfaction we all feel in your filling the post made honorable by all of your predecessors.

Dr. Harrison has not lessened his interest in our University. With untiring zeal and generosity he is giving his great abilities and time and money to the work of the University Museum, aiding in every way its most devoted and generous president, Eckley B. Coxe, Jr., the son of his former classmate. The beautiful dome bearing Dr. Harrison's name stands out against the horizon a fitting tribute to his earnest efforts in this cause.

Success has attended Charles Custis Harrison throughout his life and everyone connected with him has shared in that success. His principle has been "*Si quid agas, prudenter agas et respice finem.*" Is not his career a text on which to discuss the mode and object of education!

We see the prodigious growth and expansion, but is there true progress? Does the system followed today produce such results as those shown in that small body of young men who fifty-four years ago received the diploma of this their Alma Mater? I have only referred to my own class; but other classes of that period would not be less true examples.

Is there any vocational training which lays such foundations for after life as that which made each of us at nineteen years of age with a collegiate degree representing its true meaning, able to choose any of the learned professions or any field of useful activity and at the age of twenty-one or earlier to enter upon our life's work?

These twenty-five men came from every class, from struggling need to those in affluence. He who led us all in learning has held the first place from the age of eighteen in the practical affairs of life, and after outstripping all competitors in that field returned to increase the power for good of that Alma Mater of whom he has been the worthiest of sons.

Fifty-four years ago the degree of *Artium Baccalaureus* was

not only the foundation for that of *Artium Magister*, but enabled those receiving it to choose at once any career in life.

Look at the facts and see if it would not be wise to return to the "*Literae humaniores*" and secure that moral and intellectual discipline which is not to be had without them.

Mr. Provost, I trust this portrait will hang where the many can see it. We are happy in having still with us our adviser of forty years in the fullest vigour of mind and body. To you and the trustees I can only say may he long remain our colleague. To you young men just starting in life, look well and long on this portrait and "go ye and do likewise."

Accepting the portrait Provost Smith said:

"By the friends of the University—by its corps of devoted teachers—by its student body, the stupendous and self-sacrificing labors of the scholarly Provost, Charles Custis Harrison, will ever be cherished with deepest gratitude.

"Convey, Mr. Cadwalader, I pray you, to the generous donors of this splendid portrait the sincere thanks of the corporation."

INTRODUCTION BY THE PROVOST

Introducing the orator of the day, Dr. Smith said:

"It is the University's desire, on Commencement Day, to present the graduating class to a distinguished scholar, who brings a message. Today we are singularly fortunate and highly honored by the presence of one whom the world learned to know and admire when he controlled the destinies of *The Atlantic Monthly*. Dr. Bliss Perry, of Harvard University, brings the message."

COMMENCEMENT ORATION

By Bliss Perry, LL.D., Harvard University,
June 21, 1916

I must ask you to let me begin, like the old-fashioned novelist, with a solitary horseman. He is riding from Italy toward England, a little more than four hundred years ago. I cannot describe the horse, although it may have been that very palfrey which our traveller once borrowed from an English host, and liked so well that he forgot to return it. But it is easy enough to describe the rider, for his friend Holbein has drawn that face lovingly more than once.

It is a thin, clear face, with a wide brow, keen blue eyes, delicate nostrils, and a mouth, if anything, too finely cut; a mobile face, half churchman's, half courtier's, with the aspect of a scholar, a sceptic and a gentleman. He has turned forty, and he has never been robust. Yet he has gone far, in spite of his frail body and the bar sinister upon his birth, and he is destined to go farther still. He has been the companion of princes and prelates. It is the great Pope Julius II who has allowed him to wear that costume, half cleric, half lay; and he is now riding to the court of the young King Henry VIII of England, dreaming, like many another humanist, that the golden age of tolerance and learning is at last at hand.

He rides with a loose rein, one may fancy, as did John Wesley long afterward, that he may the more easily read and write as he

journeys. One bright day he pulls out his tablets with a happy smile; he has thought of a new pun; yes, by Hercules and all the saints, a pun that will make a good title for a new book. For he has been thinking of his best friend in England, a young lawyer of London, a devout Catholic, a Humanist and Platonist like himself, a gentle spirit who loved children and pet animals and the antics of his professional fool; a dreamer, too, an idealist who in another score of years will be Lord Chancellor, and then a martyr and saint—canonized not only by his Church but by all who love a white-souled courage—Thomas More. The horseman chuckles to himself as he remembers that that name More, if written in the Latin which both men habitually spoke, becomes Morus, that is to say, “fool.” What an odd name for the cleverest man in England! And is not Thomas More’s real charm—as his friend thinks—in his innocence of soul, his unworldliness, the happy folly of an unspoiled nature? The Greeks had a name for that, Moria. Why not amuse one’s self on the journey, and one’s friends by and by, with composing a panegyric upon foolishness, which shall also be an encomium of More himself? And so the horseman scribbles triumphantly his punning title: *Encomium Moriae*. For the book is to be none other than the famous *Praise of Folly*; and I hope that—quite as in the old-fashioned novel—you will already have guessed the name of the solitary horseman. It is Erasmus; Desiderius Erasmus of Rotterdam.

The gay little book was finished in London, under More’s own roof, and was published in 1512, four years earlier than More’s *Utopia*. Like the *Utopia*, it is written in Latin, for the eyes of cultivated Europe, and for people who can take a joke. You may read it today in more than one delightful English version, adorned with the quaint wood cuts of Holbein. There you will see Folly—who is, by the way, a young woman—setting up her pulpit in the streets and preaching to all comers. She “cries aloud,” as Wisdom did of old, but she does not shriek or threaten. She merely declaims, with infinite merriment and zest, the praise of foolishness, and by foolishness she means not merely a happy heedlessness, an obedience to impulse, a girlish spontaneity and trustfulness of the world, she means also innocence, purity of soul, that divine “foolishness of God” which is wiser than men. Yet, like so many idealists of the Renaissance, our street preacher is also a satirist.

She cracks her light whip around the ears of selfishness and stupidity and vice. She has her laugh at pedantry. She pricks the swollen ambition of churchmen. She hates cruelty. She flames out against the selfish wars of kings. And by contrast, she loves a born simpleton—a half-witted court fool,—for instance, because in all his “silliness” there is a true “blessedness.” Such a one is nearer to God than any worshiper of images, any seller of indulgences, any conceited schoolmaster, any philosopher at whom Nature is laughing. Folly has a scorn for all pretenders, all princes who are foes of learning, liberty and justice, all Popes and Cardinals who have forgotten the rude fisherman of Galilee. She invents a passage about pretence running through all society which might have been written by Thackeray, and her description of a Prince as a player with borrowed robes must have been coveted by Carlyle for Sartor Resartus.

But Folly explains at the last that her “small declamation” is really not a satire, but a panegyric. She is merely, she says, following the example of Ecclesiastes the Preacher, and the example of St. Paul himself. For did not Paul say “I speak as a fool,” knowing it to be the peculiar privilege of fools to speak, the truth without giving offence? Did he not assert that “it pleased God by foolishness to save the world,” implying that by wisdom it could never have been saved? Did not our Lord himself say, “Woe unto you, Scribes and Pharisees,” that is, woe unto you wise men, whereas He seemed chiefly delighted with children, women and illiterate fishermen? And the merry speaker closes gravely, in a passage wherein the teaching of St. Paul is strangely mingled with the doctrines of Neo-Platonism, by pointing out that the Christian religion seems a kind of alliance with Folly, that boys, old women and fools are nearest the altar, that the true wisdom is to be wholly ravished with things eternal and invisible, and whether one so ravished be in the body or out of the body, who shall say?

I cannot hope, in such a brief summary as I have here attempted, to convey the charm of this playful and subtle book. But the drift of it is perhaps clear enough. At once an imaginary declamation, an encomium upon Thomas More, a satire without bitterness, a medley of Classicism and Christianity, of reverence and irreverence, of nonsense and truth, it is really a

Praise of Innocence, an extravaganza composed upon the Beatitude, "Blessed are the pure in heart."

You will note two distinctions which Erasmus is careful to make. It is true that he praises the simplicity of ignorance, that his own sympathy lies not with the Scribes and Pharisees, but with the fishermen of the Galilean Lake. Yet he is himself a most accomplished Scribe, an intellectual aristocrat. It is clear then that he finds no virtue in ignorance itself, but only in that innocence of spirit which may be found in a Thomas More as well as in a clown. The Renaissance zest for knowledge, that zest which Rabelais compares to a fire sweeping through dry branches, was unabated in Erasmus to the end. It survived every disillusion. His Praise of Folly is not a document of reaction; it is rather a hymn to "the breadth and finer spirit of all knowledge," the secret which is hidden from the eyes of pedantry and pride.

More subtle still is his attack upon worldliness. The Renaissance was an epoch when worldliness sat high in the saddle and rode mankind; and Erasmus was a man of his age. From boyhood a favorite companion of the great, he is addressing his praise of unworldliness to the future Lord Chancellor of England. What then does he mean? That one should avoid the world, like those wearers of black and gray and white gowns whom Erasmus distrusted and despised? Surely not! The unworldliness which he praises is the freedom from spiritual entanglement, the clear-sighted sense of relative values, the ability to keep one's self unspotted by the world even while one is playing a great rôle in the world. Thirty years later, in those sad final days at Basle, Erasmus must have remembered his *Encomium Moriae* when the news came from England that Sir Thomas More had laid down the Chancellorship and walked serenely to the scaffold, in loyalty to a mere theory of the supreme jurisdiction of the Papacy. More's act was ill advised, says a modern specialist, Sir Sidney Lee; it was obscurantism. Erasmus had a simpler name for it. Himself incapable, perhaps, of such a supreme act of will, he would have called More's voluntary death a sublime folly which the world can neither give nor take away,—one of those splendid foolish things which confound the wise.

Perhaps you will agree with me in thinking that the *Encomium Moriae* is an interesting old book, without agreeing in the least

that it provides an appropriate theme for a Commencement discourse. Here we are surrounded by all this array of Learning, this display of documented and diplomacé Wisdom, and we are asked to listen to a Renaissance jester's plea for folly! With the license of her fool's cap and bells, the little lady imagined by Erasmus hints to her modern brothers in cap and gown that their wisdom will not be the truest wisdom until it is blended with what Plato and St. Paul and Erasmus called "foolishness." Knowledge may be had in any of our knowledge-shops if you have time and money for such shopping. But Wisdom tarries, like some late-flowering shrub. She has always tarried. There is no gardener's trick that can force the human plant to flower into wisdom until the right day dawns.

If the Renaissance lady in cap and bells could see the life of our American universities, she would find, no doubt, a variety of delightful observations to make and of things to praise. Yet I think she would discover two or three faults in us: our spirit of knowingness, our spirit of calculation, and our spirit of fear.

Take, first, our knowingness. Everyone is aware that within the lifetime of middle-aged persons the field of human knowledge has been indefinitely extended and sub-divided. A mass of new facts, of new generalizations, of hitherto unsuspected relations, has been revealed by science. The contemporary mind staggers under the weight of this new material. We cannot as yet assimilate it, cannot transmute it into wisdom. Yet we must recognize its existence, must act as if we really possessed it and had always possessed it,—precisely as the newly rich hasten to adapt their habits to an increased income. All around us, in the professions, in the economic and social life of the community, you will find this new half-knowledge. It is a half-knowledge which has not had time to grow modest, to become aware of its deficiencies. It pretends for the moment to be knowledge, but it is not; it is only knowingness. The real pioneers of science are modest men, but we the camp-followers who sit around the campfires and read the newspapers are braggarts and sciolists. This is one of the temptations of our facile adaptable American temperament. We cannot help putting most of our goods into the shop window. And if the American father is forced to do this in his business and the American mother is tempted to do it in her club, how are their sons to escape the same tendency?

Most college students of the present day have had wide opportunity to see something of the world. They are sophisticated. Now a sophisticated person is not one who knows too much,—for nobody can possibly, in this short life, ever know enough. The sophisticated person is one who knows too much of some things and too little about other things; he is the very pattern of that “knowingness” which mistakes half-knowledge for the truth. When Mr. Kipling, many years ago, published his “Light that Failed,” Mr. Barrie, then a young journalist, made this shrewd comment upon Dick Heldar, Mr. Kipling’s hero: “This man is under the curse of thinking that he knows everything. He believes that because he has knocked about the world in shady company he has no more to learn. It never dawns upon him that he is but a beginner in knowledge of life compared to many men who have stayed at home with their mothers.” I do not know more exact phrases than Mr. Barrie’s in which to describe the spirit of the plays and novels from which many undergraduates are now getting their notions of what they call “real life.” The stage and the stories present specialized phases of that sophisticated knowingness which is one of the penalties of our contemporary civilization. They afford a cheap initiation into certain abnormalities of artificial society, but their cleverness cannot conceal their ignorance of normal human life, and their wilful misunderstanding of its scale of values. The “Colloquies” of Erasmus show us a man who had himself seen a good deal of shady company as he rode up and down the Europe of his day, but this free-spoken man of the Renaissance represents rosy-cheeked innocence when compared to the brisk knowingness of such undergraduate favorites as the plays of Mr. Shaw, the novels of Mr. Wells, and the autobiography of Mr. George Moore.

There is another form of knowingness for which our class rooms are directly responsible. We teachers, in our social and ethical enthusiasms, are constantly delivering ourselves of immature and amateur judgments upon the most complicated problems of the day. The sociology and the politics of the popular pulpit are queer enough, but I suspect that our obiter dicta of the class room are queerer still. Whatever we are supposed to be teaching, we are subconsciously endeavoring to train our pupils for citizenship in a democracy. As ethical instinct this is admirable, but too

often we do not really train our pupils, we only excite them with our own eager chatter. We talk knowingly when we do not really know; that is our academic sin.

I have said that the little lady in cap and bells would find a second fault with our college world, namely, its spirit of studied calculation. Like our sad or smug knowingness, this spirit, too, has stolen into the college world from contemporary forces outside the college. It betrays a lack of faith in instinct, in spontaneity. We have too much university machinery in proportion to the power plant; too much organization for the size of the organs which are to be organized. We offer courses in the theory of efficiency, but the efficient person is as rare as ever. Emerson complained humorously in his *Journal* in the 1840s that in the New England of that day there was "too much comment on the movement by the mover." What would he have thought of some of our recent American performances, where the mover is identical with the movement? This restless self-seeking has attacked our academic life in every stage from the preparatory school to the graduate school. It disguises itself as public service to the academic community, but the way to that service lies, it is thought, through recognized leadership, through office-holding; and here enters the spirit of calculation, of regard for the tangible prizes of academic life. Boys in preparatory schools know perfectly well who the "big" men are in the colleges of their choice; they are the men who have "made" this or that team or club or organization, and they propose to do likewise. They plan their work and calculate their very friendships with these tangible rewards in view.

Undoubtedly the honors paid today to the young men who have "done" things or "made" things serve to develop some useful practical qualities. But these are for the most part worldly qualities, prematurely vocational, shrewdly materialistic and hostile to the true simplicity and spontaneity of youth. If I could cut one word out of the current academic vocabulary it would be the word "prominent." I cannot help wondering what the witty Erasmus of Rotterdam would say if he could see in our American newspapers photographs of "prominent" undergraduate athletes, "prominent" undergraduate office-holders, "prominent" Christians and even "prominent" Freshmen.

"As we grow older," said St. Beuve, "we grow hard in some

spots, and we grow soft in others, but we do not grow ripe." Out of this hardness and softness of half-knowledge, we conjure up strange fears. That spontaneous trust in Nature which marked the Renaissance has given place to forebodings. We are assured that the sun is growing cold, that the supply of fuel is limited, that the fertility of the soil is diminishing, that the race is deteriorating.

This "new fear," as a novelist has lately called it, arises in part from the abnormal attention directed to the future by the rapid progress of science and invention. The new knowledge confers upon man, only too evidently, enhanced destructive powers. We have made terrible tools already, and more are in the making, and we begin to suspect that men cannot be trusted with them. The dread of man thus grows with the dread of the very machinery which man has created. At this moment and in this country good men are perpetuating and popularizing and capitalizing a theory of international fear.

Now as between this new sophisticated fear of Nature and of man, and the sixteenth century's naïve faith in Nature and man, which is the truer wisdom? Their world was in many ways a far worse world than ours; but they had higher spirits than we, and a more robust laughter. Erasmus and his friends were our equals, if not our superiors, in intellect, in knowledge of men and women, in true efficiency. But they kept their delicacy of touch, their sense of humor, their essential innocence, their childlike faith in Nature. That old Humanism of theirs had its weaknesses, no doubt, but it can still teach us many things: an unashamed fear of God, a bright confidence in the goodness of His world, an innocent simplicity of soul.

If the scholar who wrote "The Praise of Folly" four hundred years ago were talking to us this morning would he not still say: "'Tis a brave world, my young masters and bachelors and doctors! Do not be afraid of it. Do not calculate your chances so closely that you miss your chance. Do not pretend to know what you do not know. Work and laugh and give thanks, for these three are one. You did not make the world. You cannot remake it. You cannot even spoil it. You may indeed have the felicity of improving some little corner of it, but in general the world has been pronounced 'very good,' Enter into its joy."

GRADUATE SCHOOL

Higher Degrees Conferred

Credentials of Candidates

The Faculty of the Graduate School held its formal session for the reception of the credentials of candidates for the higher degrees on Saturday, June 17, 1916, in the Auditorium of Houston Hall, the Provost in the chair.

Seventy-eight candidates for the Master's degree were presented to the Faculty by the Dean, who, in each case, read a brief sketch of the candidate's life, certifying that all the conditions prescribed by the statutes of the University and the rules of the Graduate School had been fulfilled. Their names follow:

MASTER OF ARTS

- FORREST EDWIN ADAMS, B.S., M.S., Dickinson College, 1911, 1913. Mathematics.
- GUY ELMER ALBERT, B.S., University of Pennsylvania, 1912. Botany.
- LYNDON E. AYRES, A.B., Bucknell University, 1901. Latin.
- CHARLES DOW BENJAMIN, A.B., University of Pennsylvania, 1915. Semitics.
- CONRAD J. I. BERGENDOFF, A.B., Augustana College, 1915. English.
- ELSA WILHELMINA BERGER, B.S., University of Pennsylvania, 1912. Bacteriology.
- MATTHEW WILSON BLACK, A.B., Pennsylvania State College, 1915. English.
- ALVA E. BLACKSTONE, B.S., Ohio University, 1911. Economics.
- EDWARD H. BONSALE, JR., A.B., Harvard University, 1909. Sociology.
- KATHERINE G. CARPENTER, A.B., Bucknell University, 1911. English.
- FRANCIS JAMES CARR, JR., B.S., University of Pennsylvania, 1915. Economics.
- ISAAC A. CHAPMAN, B.S., College of the City of New York, 1914. Education.
- SAMUEL L. CHEW, B.S., Temple College, 1905. Education.
- AMY L. CLAPP, A.B., Bryn Mawr College, 1904. Sociology.
- WALLACE LYSINGER DANEHOWER, A.B., Ursinus College, 1914. Sociology.
- FRANCES DARLINGTON, A.B., Swarthmore College, 1896. Psychology.
- ROBERT EWING DENGLE, A.B., University of Pennsylvania, 1915. Greek.
- CHARLES MILTON DUDLEY, B.S., Temple College, 1914. Economics.
- MARY MAY ELFREY, A.B., University of Pennsylvania, 1915. Latin.
- CHARLES LEVENS EMANUEL, A.B., Lincoln University, 1912. Sociology.
- SYDNEY A. FARBISH, B.S., University of Pennsylvania, 1912. English.

- SOPHIE ELIZABETH FOELL, B.S., University of Pennsylvania 1911. Chemistry.
- SARAH FLORENCE FOGELSANGER, A.B., Juniata College, 1912. English.
- MIRIAM ALICE FRANC, A.B., Goucher College, 1915.
- MYRA OLIVE GODFREY, A.B., Oberlin College, 1902. English.
- PHILIP R. GOLDSTEIN, A.B., Cornell University, 1913. Sociology.
- GRACE WINTER GREENE, A.B., Swarthmore College, 1913. English.
- OLIVER R. HARTZELL, Ph.B., Franklin and Marshall College, 1914. Education.
- WINFIELD ROSCOE HARTZELL, B.S., University of Pennsylvania, 1913. Education.
- GEORGE N. HARWARD, A.B., Wake Forest College, 1913. Sociology.
- CHARLES STROTHER HENDERSON, A.B., Mercer University, 1913. Sociology.
- WILLARD FRANCIS HOLTEEN, A.B., Gustavus Adolphus College, 1911. Botany.
- NICHOLAS I. HOURWICH, Student at University of St. Petersburg, 1906-1910. Economics.
- DOUGLASS MONTGOMERY JOHNSON, B.S., Northwestern University, 1911. Economics.
- JOHN SIBBIT KEIR, A.B., Wesleyan University, 1914. Economics.
- GROVER CLEVELAND KIRK, A.B., Temple College, 1913. Sociology.
- EDMUND KEEFER KLINE, A.B., Franklin and Marshall College, 1914. Medical Sciences.
- WILFRED PHINEHAS KOTKOV, A.B., University of Chicago, 1914. Philosophy.
- FRANK HENRY KRAMER, A.B., Pennsylvania College, 1914. Education.
- RICHARD HINES LANSBURGH, B.S., University of Pennsylvania, 1915. Economics.
- JOSEPH LESWING, B.S., University of Pennsylvania, 1912. Education.
- ELMIRA LODOR, B.S., University of Pennsylvania, 1915. Sociology.
- MARY ETHEL MCQUISTON, A.B., Monmouth College, 1912. English.
- DONALD M. MARVIN, A.B., Rollins College, 1915. Psychology.
- MARY E. MATHEWS, A.B., New Windsor College, 1899. English.
- CYRUS ALBERT MIDDLESWARTH, Ph.B., Grove City College, 1904. Education.
- WILLIAM GRAYSON MOORE, A.B., Wake Forest College, 1911. Sociology.
- HARRY HESS NYE, A.B., Franklin and Marshall College, 1915. History.
- HOMER ALLEN OBENAUF, A.B., Wittenberg College, 1913. Mathematics.
- ANDREW PARK ORTH, B.S., University of Pennsylvania, 1912. Sociology.
- ELISABETH J. PARKER, A.B., Radcliffe College, 1912. Romanics.
- MARY CLAGETT PATTERSON, B.S., University of Pennsylvania, 1912. Bacteriology.
- S. HOWARD PATTERSON, B.S., University of Pennsylvania, 1914. Sociology.
- ANNA BEACH PRATT, A.B., Elmira College, 1886. Psychology.
- ALICE CHASE RAINE, A.B., Wellesley College, 1900. History.
- HARRY W. ROHRER, A.B., Juniata College, 1912. Sociology.
- RUSKIN RAYMOND ROSBOROUGH, A.B., Stetson University, 1915. Latin.

- CARMON ROSS, PH.B., Lafayette College, 1905. Education.
JAMES ALVIN RUSSELL, A.B., Oberlin College, 1912. Sociology.
JOHAN THORSTEN SELLIN, A.B., Augustana College, 1915. Sociology.
JAMES AMBROSE SHOOK, A.B., Juniata College, 1908. History.
HENRY G. W. SMITH, A.B., Bucknell University, 1913. Psychology.
MAY SMITH, A.B., Goucher College, 1906. Sociology.
PRESTON CALVIN STRINGFIELD, A.B., Wake Forest College, 1908. Sociology.
EDMUND STRUDWICK, JR., A.B., University of Virginia, 1913.
GRANVILLE TAYLOR, A.B., Swarthmore College, 1908. Sociology.
MAX TRUMPER, B.S., Pennsylvania State College, 1915. Economics.
REXFORD GUY TUGWELL, B.S., University of Pennsylvania, 1915. Sociology.
LAURA ADELINA WARD, A.B., Vassar College, 1915. History.
WILLIAM EDWARD WARRINGTON, B.S., University of Pennsylvania, 1915.
Economics.
PAUL LAMBERT WHITE, A.B., Bowdoin College, 1914. History.
ALFRED HECTOR WILLIAMS, B.S., University of Pennsylvania, 1915. Economics.
EDWIN B. WILLIAMS, A.B., University of Pennsylvania, 1914. Romanics.
ISRAEL ZIEGLER, B.S., University of Pennsylvania, 1915. History.
-

MASTER OF SCIENCE

- CORA H. BUCKWALTER, B.S., University of Pennsylvania, 1915. Botany.
RALPH E. CLELAND, A.B., University of Pennsylvania, 1915. Botany.
MORRIS BERNARD FLEISCHER, B.S., New York University, 1912. Bacteriology.
JANET PATERSON JAMIESON, B.S., University of Pennsylvania, 1915.
Zoölogy.

Thirty-six candidates for the degree of Doctor of Philosophy were then brought before the Faculty in groups according to subject. Each candidate was presented to the Faculty by a member of the Group Committee in charge of his major subject. The presenter read a sketch of his academic record and an outline of the scope and content of his thesis.

All the candidates then withdrew and the Faculty went into executive session. A formal motion was then made by the Dean that the Faculty recommend to the Honorable, the Board of Trustees, the candidates who had been presented for the degrees of Master of Arts, Master of Science and Doctor of Philosophy, respectively. In each case, the Faculty unanimously voted "aye."

The candidates were then recalled and the action of the Faculty recommending them for the degrees of the Trustees was

announced by the Provost. The Provost extended to them the congratulations of the Faculty upon the completion of their course.

IN SEMITICS:

Dr. MÜLLER, *Presenter*.

FRANK H. RIDGLEY was born at Fort Collins, Colorado. He received the degrees of Bachelor of Arts and Master of Arts from Washington and Jefferson in 1900 and 1905, respectively. He was a student at the Western Theological Seminary 1900 to 1903. He entered the Graduate School in 1908. His major is Hebrew and his minors are Aramaic and Ethics. He has 32 units to his credit, 4 of which are for work done at Leipzig during the summers of 1908 and 1910.

Aside from his record as a student, Mr. Ridgley has been Professor of Hebrew and Old Testament Exegesis at Lincoln University since 1906.

The subject of his thesis is: "JEWISH ETHICAL IDEALISM AN EXPRESSION OF HEBREW PROPHECY."

The religion of the post-exilic Jewish community was not a reaction against the pre-exilic Hebrew faith, but a logical outgrowth of that earlier movement. The battle between the cruder elements of the common Semitic cults and the higher elements of the Hebrew faith culminated in the victory of the lofty religious and ethical ideals of the Hebrew prophets. This victory took concrete form in the reformation of Josiah and the legislation of Deuteronomy. This legislation became the basis of a developing temple usage which remained the cherished heritage of the priestly element included in the Babylonian exile. These men employed the season of enforced idleness in preparing for the time of promised restoration. The result was a carefully prepared Code—priestly in form, but inspired by the ethical and spiritual idealism of the prophets. Thus was transmitted to the untried future the rich treasures of the past, encased in the familiar forms of ritual tradition and sacrificial ceremonial. That the motive and inherent power were vital and not formal is written upon almost every page of the Psalter, and wrought out in the rebirth of racial Judaism in the universal idealism of the Prophet of Galilee.

The Executive Committee certifies that this candidate has fulfilled the requirements prescribed for the Doctor's degree.

IN LATIN:

Professor McDANIEL, *Presenter*.

WILTON WALLACE BLANCKÉ was born in Philadelphia, Pa. He received the degrees of Bachelor of Arts and Master of Arts from the University of Pennsylvania in 1905 and 1906, respectively. He entered the Graduate School in the fall of 1905 as Harrison Fellow in the Classics. His

major is Latin and his minors are Latin and Greek. He has 31 units to his credit.

In addition to his record as a student. Mr. Blancké has been connected with the Faculty of Central High School since 1906.

The subject of his thesis is: "THE DRAMATIC VALUES IN PLAUTUS."

To explain the inconsistencies and violations of dramatic reality that crowd the pages of Plautus, and to reconcile the conflicting views of his critics, we undertake:

First, an examination of the conditions under which he wrote, which yield the following result:

1. His audience was extremely turbulent and demanded broad comic effects.

2. All extant evidence indicates that his actors displayed extreme liveliness of histrionism; and of gesticulation in particular.

Second, an examination of his plays, which show the following essential and oft recurrent characteristics:

I. Machinery typical of the lower types of modern drama.

1. Bombast and mock-heroics.

2. Horse play and slap-sticks.

3. Burlesque, farce and extravagance.

4. Devices inexplicable unless interpreted in a broad farcial spirit.

II. Evidence of loose composition which prove a disregard of dramatic technique.

1. Asides and soliloquies.

2. Lengthy monologues.

3. Direct address of the audience.

4. Padded dialogue.

5. Inconsistencies of character and situation.

6. Jokes outside the play.

7. Use of stock plots and characters. Copious examples are adduced.

We conclude, then, that his plays belong to a farcial and extravagant order of drama, in which the inconsistencies that have puzzled commentators are due to the author's sole purpose of raising a laugh, and his consequent heedlessness of technical demands.

Professor MCDANIEL, *Presenter*.

JOHN CRAWFORD GRIMM was born in Columbus, Ohio. He received the degrees of Bachelor of Arts and Master of Arts from Ohio State University in 1911 and 1912, respectively. He entered the Graduate School in the fall of 1914 as Special Harrison Fellow in Latin. He was re-elected to this Fellowship in 1915-16. His major is Latin and his minors are Latin and Greek. He has 30½ units to his credit, 9 of which are for work done at Ohio State.

Aside from his record as a student, Mr. Grimm was Instructor in Latin and Greek at Bridgewater College in 1913-14.

The subject of his thesis is: "CONSTRUCTION ἀπὸ κοινοῦ IN THE WORKS OF HORACE."

An expression is said to be in the ἀπὸ κοινοῦ construction when it is, by its meaning, connected with two or more words or phrases. The expression used ἀπὸ κοινοῦ is usually a noun, modified or unmodified, but occasionally a pronoun, an adverb, an infinitive, a prepositional phrase or an ablative absolute. The first chapter includes a definition of the term, an account of its history, a discussion of the influence of the word order upon its usage, and a consideration of certain factors that make this construction frequent in Latin. The second chapter is the history and interpretation of the examples, about two hundred in number. The concluding chapter contains a classification of the examples.

Professor McDANIEL, *Presenter*.

EDWARD HOCH HEFFNER was born in Dryville, Pennsylvania. He received the degrees of Bachelor of Arts and Master of Arts from Franklin and Marshall in 1911 and Columbia University in 1914. He entered the Graduate School in the fall of 1913. During the past year he has held a Harrison Fellowship in Latin. His major is Latin and his minors are Latin and Greek. He has 29 units to his credit, 9 of which are for work done at Columbia from 1911 to 1913.

In addition to his work as a student, Mr. Heffner was Assistant in Latin at this University in 1914-15.

The subject of his thesis is: "THE SEQUENCE OF TENSES IN PLAUTUS."

In this study he examines the tenses of the dependent subjunctives in the works of Plautus: first, to determine to what extent the tense usage is at variance with the doctrine familiarly called the Sequence of Tenses, according to which the tenses of the subjunctive in dependent clauses denote time relative to that of the main verb; and, second, to ascertain the amount and kind of evidence they furnish for or against the theory held by some scholars that the dependent subjunctives denote not time relative to that of the verb in the main clause, but absolute time, as the subjunctives in independent clauses do.

The evidence is decidedly in favor of the doctrine of the Sequence of Tenses.

The Executive Committee certifies that these three candidates have fulfilled the requirements prescribed for the Doctorate.

IN ENGLISH:

Professor PENNIMAN, *Presenter*.

FREDERIC ANTHONY CHILD was born in Philadelphia, Pennsylvania. He received the degrees of Bachelor of Arts and Master of Arts from this University in 1905 and 1906, respectively. He entered the Graduate

School in 1905 as Harrison Scholar in English and continued his work during the years 1906 and 1907. He has been in residence during the past year as Harrison Fellow in English. English is his major and English Philology and Philosophy are his minors. He has 27 units to his credit.

In addition to his record as a student, Mr. Child has been Instructor in English from 1906 to 1915.

The subject of his thesis is: "THE LIFE AND POETRY OF THOMAS FLATMAN."

Flatman, an English poet and miniature painter, lived between the years 1637 and 1688. He received degrees from both Universities and was an occasional attendant at Court, composing a "New Year's Song" at the command of Charles II. During Flatman's lifetime, four editions of his poems were printed. His work as a miniaturist was highly praised and many prominent persons sat to him for their portraits. Flatman wrote a number of popular songs and eleven Pindaric Odes in the manner of Cowley.

The thesis establishes several new facts concerning Flatman's life, among which may be mentioned his membership in the Royal Society, his kinship to Archbishop Sancroft and his authorship of "Heraclitus Rideus," a newspaper printed anonymously in 1681 in support of the King. In addition, the following examples of Flatman's writings have been recovered: seven letters to Sancroft, one written two weeks after the fire of London in 1666, and descriptive of the conditions of the city; prefatory matter to an edition of Thomas Shipman's "Carolina," edited by Flatman, and thirty-nine poems never before printed as Flatman's work, found in various places; three taken from a manuscript volume in the handwriting of Flatman, now in the University Library, one from the fly-leaves of an edition of Flatman's poems in the Harvard Library and twenty-eight from the newspaper "Heraclitus Rideus."

The thesis likewise involves a careful collation of the texts of the four editions of Flatman's poems, those of 1674, 1676, 1682 and 1686, together with an incorporation of the variants in the manuscript volume alluded to above.

Professor PENNIMAN, *Presenter*.

LEWIS BURTRON HESSLER was born at Omaha, Nebraska. He received the degrees of Bachelor of Arts and Master of Arts from the University of Pennsylvania in 1905 and 1906, respectively. He entered the Graduate School in the fall of 1905 as University Scholar in The Classics. In 1911-12 he was Harrison Fellow in English. English Literature is his major and English Philology and Latin are his minors. He has 29 units to his credit.

In addition to his record as a student, Mr. Hessler has been an Instructor in English since 1912.

The subject of his thesis is: "THE LATIN EPIGRAM OF THE MIDDLE ENGLISH PERIOD, WITH SPECIAL REFERENCE TO A MANUSCRIPT IN THE BRITISH MUSEUM (Ms. Reg. 17 C xvii, fol. 17b. 18)."

This thesis, consisting of a transcription and translation of the British Museum manuscript together with textual and critical commentary, is offered as part of a larger collection of the Latin epigrams of the Middle English period planned for future publication. The manuscript, written by one John the Priest, consists of one hundred and eighty-eight verses, mostly in dactylic hexameter. The script shows it to be of the fourteenth century, the lines being extremely cramped and full of contractions and cursive letters. The contents, while not all strictly epigrammatic in character, are described thus for convenience's sake. Their nature is indicated accurately by the caption which the writer himself uses: "This little book is especially necessary for priests." The poems, whose separate character is indicated by quotation marks at the beginning of the first line of each, are some of them apothegms, some true epigrams, and some descriptive or occasional verses. Although a few of the lines are abbreviated and obscure and others are plainly corrupt, this collection and the whole body of Latin Epigrams of the Middle English period, like those of Martial in their day, throw an interesting sidelight on the life and thought of the times.

Professor PENNIMAN, *Presenter*.

GEORGE WILLIAM McCLELLAND was born at Dobbs Ferry, New York. He received the degrees of Bachelor of Arts and Master of Arts from the University of Pennsylvania in 1903 and 1912, respectively. He entered the Graduate School in 1903. English Literature is his major and Latin and English Philology are his minors.

He has 35½ units to his credit, 3 of which are for work done at Columbia University in the Summer School.

In addition to his work as a student, Mr. McClelland has been Instructor in English, College of the City of New York, 1905 to 1909; Assistant in Greek, University of Pennsylvania, 1909-10, and Instructor in English since 1911.

The subject of his thesis is: "JOHN BRINSLEY AND THE GRAMMAR-SCHOOL EDUCATION OF HIS DAY."

John Brinsley was a Puritan schoolmaster who exactly three hundred years ago was serving as headmaster of the Grammar School at Ashby-de-la-Zouche. He was also an educator who, eager to improve the teaching in all British schools similar to his own, spent years in educational research and experimentation. Becoming convinced that the adoption of more intelligent methods of imparting information would effect a needed reform, he published the results of his investigations in a series of treatises and textbooks. The most significant of these was the *Ludus Literarius*, a copy of which (1627) is in the University Library. It is a colloquy between two schoolmasters, one disheartened after following the methods then in vogue, the other (Brinsley in disguise) full of optimism for the new methods he has to suggest to his colleague.

The purpose of this thesis has been: (1) to assemble all available biographical information concerning Brinsley; (2) to give an account of each

of his numerous educational and religious writings; (3) to compare his pedagogical theories with those of other educational writers influential in Tudor times; and (4) to put his statements of current practice beside the provisions of the grammar-school statutes and other documentary evidence. This double comparison with other theory and with practice includes the consideration of: general educational aims, matters of school organization and discipline, qualifications and duties of Masters and ushers, elementary education, the teaching of Latin, Greek, and Hebrew, the teaching of English, and, most important of all for this Puritan master, religious instruction.

The Executive Committee certifies that these three candidates have fulfilled the requirements prescribed for the Doctorate.

IN GERMAN:

Professor SHUMWAY, *Presenter*.

CARL FRIEDRICH HAUSSMANN was born in Brooklyn, New York. He received the degree of Bachelor of Arts from the University of Pennsylvania in 1892. He entered the Graduate School in the fall of 1909. His major is Germanic Literature and his minors German and English Philology. He has 29 units to his credit.

In addition to his work as a student, he has been connected with the Faculty of the Central High School, Philadelphia, since 1909.

The subject of his thesis is: "KUNZE'S SEMINARIUM AND THE SOCIETY FOR THE PROPOGATION OF CHRISTIANITY AND USEFUL KNOWLEDGE AMONG THE GERMANS IN AMERICA."

This thesis is based upon original manuscript sources found in Dr. Kunze's minute-book which was discovered early in the investigation. The thesis itself deals with Kunze's Seminarium and its relation to the Society for the Propagation of Christianity and useful knowledge. The Seminarium was founded in Philadelphia, February 9, 1773, by Dr. Kunze, a graduate of Halle and Leipsic. Its purpose was to give strict academic instruction and to prepare students for the ministry. At the same time a Society for the Propagation of Christianity and Useful Knowledge among the Germans of America was organized under whose auspices the school was maintained. The ultimate purpose of the society was not only to provide the means for the support of the school but to lay the foundations for a comprehensive system of educational institutions similar to the one at Halle. A detailed account of the proceedings of the Society, its Constitution, the Curriculum and the History of the School is given. The school was in existence from February, 1773, to September, 1777, and, after an interval of two years, was continued until 1786 at the University of Pennsylvania. Kunze was appointed German Professor of Philology and carried on the work of the Seminarium in collaboration with Helmuth and Möller under the name of the "German Institut."

Professor SHUMWAY, *Presenter*.

ARTHUR CARL JORDAN was born in Paterson, New Jersey. He received the degree of Bachelor of Arts from German Wallace College in 1913. He entered the Graduate School in the fall of 1913 as University Scholar in Germanics. He was re-elected to the same Scholarship in 1914 and again in 1915. He has $31\frac{1}{2}$ units to his credit. His major is German Literature and his minors German Philology and English Philology.

The subject of his thesis is: "ON THE GERMAN LANGUAGE IN COLONIAL, SECULAR, PROSE DOCUMENTS FROM PHILADELPHIA AND GERMANTOWN."

This thesis attempts to give a picture of the German language as used in America during the Colonial period. As sources, the following have been used: all the older newspapers of the period, Saur's Almanac, the German-town Court-book and Christopher Dock's works. The introductory chapter makes necessary remarks about these documents. Chapter I treats of the spellings, forms and the phonology of the language. Chapter II discusses the influence of English on the vocabulary. Many English words were used and these have been listed and illustrated with copious examples. These examples at the same time serve to illustrate more fully the phenomena recorded under Chapter I. Chapter III treats of cases where the German idiom has been influenced by the English idiom.

This thesis has been the first attempt to treat in a systematic way the German language in America during the Colonial period and doubtlessly suffers from the faults due to such a first attempt.

The Executive Committee certifies that these two candidates have fulfilled the requirements prescribed for the Doctorate.

IN ROMANICS:

Professor RENNERT, *Presenter*.

SALADINO VINCENZO DI SANTO was born in Palombaro, Italy. He received the degrees of Bachelor of Arts and Master of Arts from the University of Pennsylvania in 1912 and February of 1916, respectively. He entered the Graduate School in 1912. During the year 1913-14, he was Jusserand Traveling Scholar in French. Romanics is his major and Italian and English are his minors. He has 28 units to his credit, 12 of which are for work done at Rome.

In addition to his record as a student, Mr. di Santo has been an Instructor in Romance Languages since 1914.

The subject of his thesis is: "LA FORTUNA DEL PRINCIPE DEL MACHIAVELLI IN ISPAGNA."

The purpose of this dissertation is to trace the fortunes of the Prince of Machiavelli in Spain. The work consists of four main parts: (1) a brief consideration of the translations of the Prince into Spanish and an endeavor to ascertain the extent of its popularity in Spain during the second half of

the sixteenth and the following centuries; (2) an examination of the principal Spanish Antimachiavellisti, Pedro Rivadencyra, Juan Marquez and Claudius Clement; (3) the influence of the Prince on the works of Baltasar Gracian and of Diego de Saavedra Fajardo; (4) a brief study of Feijoo and "Azorin" as defenders of Machiavelli.

The conclusions drawn from these investigations are the following: first, Machiavelli's Prince penetrated Spain later than the other countries of Western Europe on account of the Inquisition; second, the Spanish enemies of Machiavelli were weak in their arguments against him and often contradicted themselves; third, Baltasar and Saavedra were not Antimachiavellisti as they declared themselves to be, for their theories of government coincided, on the most vital points, exactly with the theories of Machiavelli; fourth, Machiavelli was not fully understood in Spain until the eighteenth century when Feijoo vindicated his good name and rebuked his assailants.

The Executive Committee certified that this candidate has fulfilled the requirements prescribed for the Doctor's degree.

IN HISTORY:

Professor CHEYNEY, *Presenter*.

LEONARD PETER FOX was born in Empire, Wisconsin. He received the degrees of Bachelor of Arts and Master of Arts from the University of Wisconsin in 1911 and 1912, respectively. He entered the Graduate School in the fall of 1913 as Special Harrison Fellow in History. He was again made Harrison Fellow in 1914-15. American History is his major, European History and Political Science are his minors. He has 29 units to his credit, 11 of which are for work done at Wisconsin.

Aside from his record as a student, Mr. Fox was an Assistant in History at Wisconsin, 1911-12. He was Instructor in History at the University of Colorado during the year 1912-13 and has since been Assistant at this University.

The subject of his thesis is: "THE ORIGIN AND EARLY DEVELOPMENT OF POPULISM IN COLORADO."

Populism in Colorado was an effort to secure relief from disturbing economic and political conditions through the legislative program of a third party.

In the decade 1880-90 settlers invaded the rainbelt, hoping to raise crops without irrigation. Contemporaneously eastern and foreign corporations built large canals and sold water to the farmers in the irrigated area. State water law and administration permitted the canal corporations to charge excessive rates and to sell water they could not deliver.

During the lean rainfall of 1890, irrigation and rainbelt farmers—already cooperating in the Grange and Alliance—launched an independent party. Its chief principles were state ownership of irrigation ditches, regulation of

railroad rates and inflation of the currency. The agrarian party failed to carry even the farm vote but continued in 1891 as the People's party.

In the eighties silver mining was the basis of three-fourths of Colorado's industries. The steady decline in the price of silver and the equivocal silver planks of the old parties in 1892, severed party ties in the state.

After the espousal of free silver at Omaha, the agrarian Populists forced Democratic ratification of their state ticket in return for fusion Weaver electors. The sweeping victory of the Populists was merely an endorsement of their free silver plank. For most of the Populists temporarily left the old parties to protest against their hostility to silver.

Professor CHEYNEY, *Presenter*.

ELISABETH FULLER JACKSON was born in Lynn, Massachusetts. She received the degrees of Bachelor of Arts and Master of Arts from Wellesley College in 1913 and the University of Pennsylvania in 1914, respectively. She entered the Graduate School in 1913. During the year 1914-15 she was University Scholar in History. In 1915-16, she was Pepper Fellow in the same subject. Her major is English History and her minors are Political Science and American History. She has 32 units to her credit.

The subject of her thesis is: "THE OFFICE AND ACTIONS OF THE LORD LIEUTENANT DURING THE TUDOR PERIOD."

The office of Lord Lieutenant is first heard of in Edward VI's reign and became general during the reign of Elizabeth. The Lord Lieutenant was appointed by the crown to govern the county named in his commission. A general form of commission had been adopted before the close of Elizabeth's reign. The Lord Lieutenant was usually one of the great nobles and frequently Lord Lieutenant of two or three counties. Each Lord Lieutenant had two or more Deputy Lieutenants who did much of the actual work required by the office. The powers of the Lord Lieutenant were almost vice-regal. His duties were chiefly military but he also had certain civil duties. The Lord Lieutenant reported to the Privy Council on the condition of his county. The Crown kept strict watch over the performance of his duties. The Lord Lieutenants were particularly active at the critical periods of the Rebellion of the North and the Spanish Armada. Their powers increased still further toward the end of Elizabeth's reign, they were prominent officials during the next two centuries, and the office has continued to exist till the present time.

Professor CHEYNEY, *Presenter*.

ANNA LANE LINGELBACH was born at Shelbyville, Illinois. She received the degrees of Bachelor of Arts and Master of Arts from Indiana University in 1895 and 1896, respectively. She was a graduate student at the University of Chicago from 1896 to 1898. She entered the Graduate School in 1915. Her major is European History and English and American History are her minors. There are $25\frac{1}{3}$ units to her credit, $19\frac{1}{3}$ of which are for work done at Indiana and Chicago.

The subject of her thesis is: "THE APPLICATION OF THE BRITISH NAVIGATION ACTS TO INTERCOURSE WITH AMERICA FROM 1783 TO 1815."

This thesis is a study of the important and, as yet, rather neglected field of English-American commercial relations immediately following American independence. It deals with the measures of the British to regulate commercial intercourse with the United States from 1783 to 1815, giving especial attention to the influences back of the different legislative and administrative acts. The time-honored Navigation System of Great Britain, which had become a shibboleth with the English people as well as with the powerful shipping and mercantile interests was applied to commerce with the United States despite the protests of American and a few far-seeing English statesmen like Pitt. For ten years England refused to make a commercial treaty with the United States partly through contempt for the latter's political weakness, partly through fear of commercial rivalry. During the wars of the French Revolution and with Napoleon, England's restrictions upon American commerce were modified from time to time as occasion demanded till the vexatious restraints and impositions to enforce the Continental Blockade brought on the War of 1812.

The work is based mainly on sources found in the Public Record Office the British Museum, the Privy Council Office and the Provincial Archives at Halifax; the principal source however being the manuscript records of the Board of Trade.

Professor CHEYNEY, *Presenter*.

MORRIS KIMBLE TURNER was born at Liverpool, Pennsylvania. He received the degrees of Bachelor of Arts and Master of Arts from Dickinson College in 1905 and Harvard University in 1910. He entered the Graduate School in 1913 as Harrison Scholar in History and during the year 1914-15 he was University Scholar in the same subject. American History is his major and English History and Education are his minors. He has 30½ units to his credit, 18½ of which are for work done at Harvard.

In addition to his work as a student, Mr. Turner was Principal of the Charleston, West Virginia, High School from 1910 to 1913.

The subject of his thesis is: "THE COMMERCIAL RELATIONS OF THE SUSQUEHANNA VALLEY DURING THE COLONIAL PERIOD."

This thesis is a study of a phase of the economic history of Pennsylvania. By an examination of the economic conditions of the Susquehanna Valley and its commercial relations with Philadelphia and Baltimore are revealed the forces at work which provoked the antagonisms so manifest between the east and the west in the pre-revolutionary period. Having ascertained the nature of the economic conditions and the extent of the trade relations, the conclusion is reached that these were among the most powerful causes for the intense sectionalism in the Province and, added to the racial antipathies existing at the time, were the forces which made the revolutionary movement popular in the Susquehanna Valley and ultimately drove the conservative government

into an acceptance of the demands advocated by the radical party men and to join the other colonies in the war.

The Executive Committee certifies that these four candidates have fulfilled the requirements prescribed for the Doctorate.

IN POLITICAL SCIENCE:

Professor ROWE, *Presenter*.

CHARLES HOLLOWAY CRENNAN was born in Washington, Indiana. He received the degrees of Bachelor of Arts and Master of Arts from Indiana University in 1913 and 1914, respectively. He entered the Graduate School in the fall of 1914 as Harrison Fellow in Political Science. He was re-elected to this Fellowship for 1915-16. His major is Political Science and Economics and American History are his minors. He has 31 units to his credit, 9 of which represent work done at Indiana University in 1913-14.

The subject of his thesis is: "A SURVEY OF STATE EXECUTIVE ORGANIZATION AND A PLAN OF RE-ORGANIZATION."

Executive work in the several American States is carried on by departments varying in number from 35 to 150. The constitutional and statutory officers and boards, comprising these departments, have been created as needs arose, without any preconceived plan of organization, and at present they are largely independent of the governor and of each other. The defects of a decentralized state executive have been recognized for some forty-five years, by political-scientists and governors; but greatly increased functions of state government and rising tax rates have recently caused investigation of executive work by fourteen state commissions, whose reports substantiate the criticisms previously offered.

The first part of this thesis presents in detail the facts of organization regarding the different state executives. Then follows an appraisal of that organization. The third section of the monograph offers a plan of reorganization based in part on the findings of the special commission reports, in part on the organization of the national executive, and upon analogies with the organization of great business corporations. The problem treated is that of reducing the number and simplifying the organization of executive department, and of coordinating their work so as to avoid duplication, overlapping, or scattering of duties. Under the plan proposed the governor is given full power to see that the laws are executed, and at the same time he is forced to assume complete responsibility to the people for the efficient, economical work of the executive branch of State Government.

The Executive Committee certifies that this candidate has fulfilled the requirements prescribed for the Doctor's degree.

IN ECONOMICS:

Professor MOXEY, *Presenter*.

RALPH HARRUB BLANCHARD was born in Plympton, Massachusetts. He received the degrees of Bachelor of Arts and Master of Arts from Dartmouth College in 1911 and 1912, respectively. He entered the Graduate School in 1912 as Harrison Fellow in Economics. His major is Economics and his minors are Transportation and Insurance. He has 40 units to his credit, 12 of which are for work done at Dartmouth.

In addition to his record as a student, Mr. Blanchard has been an Assistant in Economics since 1914.

The subject of his thesis is: "INDUSTRIAL ACCIDENTS AND WORKMEN'S COMPENSATION."

The occurrence of accidents to workmen employed in industrial undertakings has created one of the greatest of our modern social problems. Although methods of conducting industry are in large degree responsible for industrial accidents, the workmen have been obliged to bear the greater part of the resultant loss. Measures have been taken for the prevention of accidents of this nature and, in so far as they succeed, are beneficial. But there still remain many accidents which are not, or can not be prevented.

Under the older system of law the employee was forced to bear the burden of loss from an accident unless he could prove that it had occurred through the personal fault of the employer. In the unusual event that such proof could be established the employer was liable in damages which, however, seldom bore any real relation to the amount of the loss.

Under the newer system of workmen's compensation the industry is compelled to compensate its employees for loss due to accidents occurring in the course of their employment. This change of method may be defended both on grounds of justice and of policy.

Professor MOXEY, *Presenter*.

OSWALD FREDERIC BOUCKE was born in Bremerhaven, Germany. He received the degrees of Bachelor of Arts and Master of Arts from the University of Michigan in 1905 and 1906, respectively. He was a graduate student in the University of Michigan during the years 1905 to 1907. In the fall of the same year he entered the Graduate School as Harrison Fellow in History. He re-entered the Graduate School in the Summer Sessions of 1913, 1914, 1915 and also has been in residence during the past year. Economics is his major and European and English History are his minors. He has $27\frac{1}{2}$ units to his credit, $11\frac{1}{2}$ of which are for work done at Michigan.

In addition to his record as a student, Mr. Boucke has been connected with the Faculty of State College since 1908.

The subject of his thesis is: "RISING COSTS OF LIVING."

This thesis endeavors to show that a rise in living costs rests on changes in the make-up of national wealth and in costs of production. When this occurs prices and the incomes of social groups are powerfully affected. In the United

States for instance, inferior grades of labor since 1900 received less of the total income of the country than formerly, even though the level of living rose in important respects. What caused the cry of "high costs" was a slight decline per head of population of the food-supply, for which a decided increase in other goods could not compensate the average man.

In other words, the problem of rising costs of living is one of values, costs, and distribution; not of money. Progress means bigger returns for like effort. Our powers of enjoyment grow, and with them, in one sense, prices. But incomes need not grow equally for all classes, nor production equally for all kinds of commodities. Hence some groups of people may suffer from what is popularly known as "high costs of living."

Professor MOXEY, *Presenter*.

RALPH DOUGLAS FLEMING was born in Philadelphia, Pennsylvania. He received the degrees of Bachelor of Arts from Leland Stanford University in 1906 and Master of Arts from the University of Pennsylvania in 1907. He entered the Graduate School in the fall of 1906 and during the year 1907-08, he was Harrison Scholar in Economics. Economics in his major and Political Science and Transportation are his minors. He has 31 units to his credit.

The subject of his thesis is: "CONDITIONS OF LABOR AND WAGES IN STREET RAILROAD, MOTOR AND WAGON TRANSPORTATION SERVICES OF CLEVELAND."

As the name indicates, the thesis is a study of labor conditions in various forms of street transportation in Cleveland. Among the subjects considered are qualifications for employment, nativity and age, regularity of employment, union organization, wages, hours and educational requirements.

In street railway service the applicant must meet the mental and physical requirements set by the company. Chances for promotion are slight, promotion usually consisting of better runs which are the reward to those longest in service. Owing to the nature of the service, discipline is severe, but opportunity is afforded a discharged employee to have his case heard. Employment is fairly regular with little seasonal fluctuation. The occupations are not hazardous. Employment for new men or "extras" is irregular, while men long in service are often allowed to overwork. Hours for regular workers are long. The occupations are strongly unionized. Wages are good except for "extra" men. Educational requirements comprise a knowledge of reading, writing and arithmetic, preliminary training to motormen and conductors is given by the company.

The number of chauffeurs in all forms of motor transportation is rapidly increasing. This work in many cases has been taken over by drivers and teamsters. The requirements for chauffeurs and teamsters depend largely upon the nature of the business. In some businesses the delivery part of the work is most essential; in others the quality of salesmanship is the most important. The employment is regular. The occupations are organized with many branches of varying degrees of strength. Hours of labor vary, usually from eight to twelve a day. Wages vary greatly and for some drivers depend mostly on commissions. Training in automobile construction and operation

is given in three private schools, although it is suggested that automobile construction could be taught in the technical schools of Cleveland.

Professor MOXEY, *Presenter*.

JOSEPH HENRY WILLITS was born at Concordville, Pennsylvania. He received the degrees of Bachelor of Arts and Master of Arts from Swarthmore College, 1911 and 1912, respectively. He entered the Graduate School in the fall of 1911. His major is Industry and his minors are Economics and Sociology. He has 28 units to his credit.

Aside from his record as a student, Mr. Willits was an Instructor at Swarthmore in 1912 and Instructor in Industry, University of Pennsylvania, 1912 to date.

The subject of his thesis is: "THE UNEMPLOYED IN PHILADELPHIA."

This study was undertaken under the direction of the City Government of Philadelphia during the winter of 1914-15 when unemployment in the City of Philadelphia was peculiarly acute. It is an attempt to outline a program for the city in dealing with this problem, and which especially attempts to point out the obligation of, and devices used by, individual employers to steady employment within their own plants.

The first part of the study is devoted to a presentation of the main facts regarding unemployment and irregularity of employment in Philadelphia industries.

Next is taken up the significance and cost of employment to the employee and to the employer.

Part III presents a comprehensive statement of the most effective devices that have been used by industrial managers to secure steady, full-time employment in their own plants.

The remainder of the study outlines the responsibility of the City Government and specifically suggests the form which a public employment bureau should take.

The Executive Committee certifies that these four candidates have fulfilled the requirements prescribed for the Doctorate.

IN EDUCATION:

Professor GRAVES, *Presenter*.

CHARLES C. PETERS was born at Duffield, Pennsylvania. He received the degrees of Bachelor of Arts and Master of Arts from Lebanon Valley College in 1905 and Harvard University in 1910, respectively. He entered the Graduate School in 1913. During 1914-15 he held a Half University Scholarship in Education, which is his major. His two minors are Philosophy and Ethics. He has 27 units to his credit, 12 of which are for work done at Harvard.

Aside from his record as a student, Mr. Peters has been teaching since 1905 and at present he is Superintending Principal of the Royersford Public Schools.

The subject of his thesis is: "A COURSE IN THE CONTROL OF CONDUCT FOR SECONDARY SCHOOLS."

Part I. Pedagogical Foundations.

A. This study attempts to select and organize, and justify from the standpoint of educational principles, materials for a course of study calculated to prepare for the intelligent control of the mind in its effort to adjust the conduct of the individual to the situation which will confront him.

B. It is a general course, selecting its materials from psychology, logic, ethics, sociology, and the psychology and philosophy of religion. The criterion for the selection of materials is, on the one hand, relative usefulness to the average high school graduate and, on the other, service to the individual to whom the instruction is to be given rather than to the group. A general course appears to be justifiable from the psychological standpoint and from that of educational economy and may be a coherent whole.

C. Such course in the control of conduct is moral training in the broader sense. It gives to the student the rationale of conduct, which is essential to adolescent moral education.

D. Much of such instruction may be expected to function in practice, for ideas lie very close to acts, especially when these ideas are emotionalized. This course seeks to emotionalize its main ideas through the free use of quotations from idealistic literature.

Part II. Synopsis of the Course.

Part II consists of a synopsis of materials selected for the course. The full text, in thirty-three chapters, is to be deposited in the Library as a part of the thesis.

The Executive Committee certifies that this candidate has fulfilled the requirements prescribed for the Doctorate.

IN PSYCHOLOGY:

Professor TWITMYER, *Presenter*.

ELEANOR LARRABEE LATTIMORE was born at Rochester, New York. She received the degrees of Bachelor of Arts and Master of Arts from Bryn Mawr College in 1900 and the University of Rochester in 1904, respectively. She entered the Graduate School in 1913 as Bennett Fellow in Psychology. Her major is Psychology and her minors are Education and Sociology. She has 31 units to her credit, 7 of which are for work done at Rochester.

Aside from her record as a student, Miss Lattimore was Instructor in Anatomy and Physiology in the General Hospital Training School for Nurses in Rochester, 1902-06; Instructor in Biology, East High School, Rochester, 1904-13, and Head of the Social Service Department of the Psychological Clinic at the University of Pennsylvania since 1914.

The subject of her thesis is: "SOME ILLUSTRATIVE CLINIC CASES."

This thesis consists of fifty clinic records selected from two thousand cases examined at the Psychological Clinic of the University of Pennsylvania since its foundation by Dr. Lightner Witmer in 1896.

The records are chiefly those of borderline cases chosen because of their bearing on the problems presented to a clinical psychologist. In each case the selection has been governed by the occurrence of significant factors either in the heredity or environment which have apparently influenced the mental condition of the child. These factors are stated for each case. The details of the mental examination are given to illustrate the use of psychological tests. Each diagnosis is accompanied by a prognosis and a recommendation for treatment. The subsequent history in each case discusses the carrying out of the recommendations to the present time. The fifty cases are arranged in fourteen groups to illustrate the problems of retardation due to physical defects; tubercular degeneracy of parents; traumatic dementia; psychopathic phenomena; congenital syphilis; epilepsy; social nonconformity; the value of social service and of clinic teaching; speech training and the special class; mongolism and glandular dystrophy.

Professor TWITMYER, *Presenter*.

FRANK H. REITER was born in Red Hill, Pennsylvania. He received the degrees of Bachelor of Arts and Master of Arts from Muhlenberg College in 1905 and Gallaudet College in 1909, respectively. He was a student at Lutheran Theological Seminary from 1905 to 1908. He entered the Graduate School in 1911. During 1913-14 he held a Half University Scholarship in Psychology. His major is Psychology and his minors are Child Psychology and Sociology. He has 24½ units to his credit.

In addition to his work as a student, Mr. Reiter was an Instructor in the Pennsylvania Institution for the Deaf and Dumb from 1909-14 and Instructor in Psychology at this University since 1914.

The subject of his thesis is: "THE INFLUENCE OF INSTRUCTION ON THE FORMATION OF JUDGMENTS IN LIFTED WEIGHT EXPERIMENTS."

The chief purpose of psycho-physics is the determination of the threshold of sensitivity of the psycho-physical organism or the relation existing between stimulus and sensation. Lifted weight experiments have been extensively employed to obtain data for the study of this relation and the general method of procedure pursued in such experiments has been thoroughly standardized. Previous experimenters have not been of one opinion as to the "Aufgabe" or the problem set for the subject, *i. e.*, some of them would employ only two categories, heavier or lighter; others would employ three, heavier, lighter or equal; while a third group insisted on as many as eight. The present study undertakes to determine to what extent judgments are influenced by various modifications of the usual form of instruction, heavier, lighter or equal. During the latter part of the investigation the subjects were instructed in the objective intensity of the stimuli. This was done to determine what the effect of an intimate knowledge of the stimuli had upon the judgments. Fifty thousand four hundred judgments comprise the experimental data. The results obtained

when various forms of instruction were employed are negative. The results obtained for the latter part of the investigation indicate that a knowledge of the intensity of the stimuli influences the judgments.

Professor TWITMYER, *Presenter*.

HERMAN H. YOUNG was born at Lake, Ohio. He received the degrees of Bachelor of Arts and Master of Arts from Ohio University in 1913 and 1914, respectively. He was a graduate student at the University of Chicago in 1913. He entered the Graduate School in the fall of 1914 as Harrison Fellow in Psychology, to which Fellowship he was re-elected in 1915-16. His major is Psychology and his minors are Clinical and Child Psychology. He has 32 units to his credit, 8 of which are for work done at Chicago and 3 for work at Ohio University.

In addition to his record as a student, Mr. Young was Instructor in Psychology, Ohio University, in 1913-14.

The subject of his thesis is: "THE WITMER FORMBOARD."

The formboard ranks first among clinical tests. It is a developmental outgrowth of the simpler contrivances first used by Itard and Seguin for training purposes. The present investigation is the first of a series to be based on Dr. Lightner Witmer's final modification of the older types of board.

This thesis establishes a standardized method of giving the test. Two thousand eight hundred children and two hundred adults were tested. A separate record has been kept of each individual's performance and placed in a permanent file in the Psychological Laboratory. All records are classified according to sex and age. On the basis of these results, an analytic chart of the various mental and physical factors involved in the formboard performance has been developed. The central time values for each sex and age group have been computed and are represented graphically. These tabulations show (1) that formboard ability increases at least to the age of fifteen; (2) that half-yearly norms are necessary up at least to the age of thirteen, if a standardization is to have practical value; and (3) that boys are on the average superior to girls in formboard ability.

The Executive Committee certifies that these three candidates have fulfilled the requirements for the Doctorate.

IN MATHEMATICS:

Dr. MOORE, *Presenter*.

JOHN ROBERT KLINE was born at Quakertown, Pennsylvania. He received the degrees of Bachelor of Arts and Master of Arts from Muhlenberg in 1912, and the University of Pennsylvania in 1914, respectively. He matriculated in the Graduate School in 1913 and in 1914 was made Harrison Fellow in Mathematics. During 1915-16 he held a Half Scholarship in the same subject. His major and minors are Mathematics. He has $32\frac{1}{2}$ units to his credit.

The subject of his thesis is: "DOUBLE ELLIPTIC GEOMETRY IN TERMS OF POINT AND ORDER."

Double Elliptic Geometry is simply isomorphic with geometry on the surface of a hypersphere in Euclidean space of four dimensions. A very simple example of Double Elliptic Geometry of Two Dimensions is the geometry on the surface of a sphere, the great circles of this sphere being regarded as straight lines. However, Double Elliptic Geometry of Three Dimensions is not simply isomorphic with geometry, in which the set of all planes is identified with the set of all spheres in Euclidean space of three dimensions.

Halsted in his Rational Geometry has built up Double Elliptic Geometry of Two Dimensions in terms of the undefined symbols point, order, congruence and association. Mr. Kline's thesis contains a categorical system of ten mutually independent axioms for Three Dimensional Double Elliptic Geometry in terms of the undefined symbols point and order. Congruence is introduced by definition, two figures being defined as congruent to one another in case one can be carried into the other by a projective transformation leaving invariant a certain previously selected polar system.

Professor BABB, *Presenter*.

JAMES HENRY WEAVER was born in Madison County, Ohio. He received the degrees of Bachelor of Arts and Master of Arts from Otterbein University in 1908 and Ohio State University in 1911, respectively. He entered the Graduate School in 1912. During the year 1914-15 he held a Half University Scholarship in Mathematics. His major and both minors are in Mathematics. He has 31 units to his credit, 12 of which are for work done at Ohio State.

In addition to his work as a student, Mr. Weaver has been Assistant in Mathematics, Ohio State University, from 1910-12 and Head of the Department of Mathematics, West Chester High School, 1912 to date.

The subject of his thesis is: "SOME EXTENSIONS OF THE WORK OF PAPPUS AND STEINER ON TANGENT CIRCLES."

Among the works of Pappus, a Greek Mathematician who lived at the end of the third century of our era, is one which goes by the title of "The Collection." In this "Collection" he reviewed the principal theories that had been developed by preceeding Greek Mathematicians, added many important lemmas and discussed very carefully many fundamental properties heretofore tacitly assumed. He is the last dying flame of Greek Mathematics; Kepler Des Cartes, Fermat, Chasles, Simpson, Newton, Steiner, all have gone to this collection for their inspiration.

This rich "Collection" has not been available to the general student, as the original is in Medieval Greek with translations into Latin by Commandinus, 1589, Wallis, 1688, Hultsch, 1876-78. Mr. Weaver has made an English translation from the edition of Hultsch, and submits as his thesis:

Some extensions of the work of Pappus and Steiner on Tangent Circles.

Pappus in Book IV of the Collection develops some properties of infinite systems of tangent circles which are tangent to two given circles. Mr. Weaver's thesis extends these results in two directions.

(1) He finds the analytic expression for the radius of the n th circle in the infinite series, and also the expression for certain other allied lines, and from these expressions develops some infinite series which may be summed geometrically. These series closely resemble those given by Fabry, from an analytic point of view.

(2) He develops a projective method for constructing conics and investigates some projective properties of tangents and normals to the conics determined by the given circle and the series A. The results here are supplementary to those of Steiner on the same problem and include additional extensions in the light of modern projective theory.

The Executive Committee certifies that these two candidates have fulfilled the requirements prescribed for the Doctorate.

IN PHYSICS:

Professor GOODSPEED, *Presenter*.

KARL HARTLEY FUSSLER was born at Greencastle, Indiana. He received the degree of Bachelor of Arts from Indiana University in 1909. He entered the Graduate School in the fall of 1910. His major is Physics and and Physics and Mathematics are his minors. He has $29\frac{1}{2}$ units to his credit, 6 of which are for work done at Indiana during 1909 and 1910.

In addition to his record as a student, Mr. Fussler has been an Assistant in Physics in Indiana University, 1908-09; Depauw University, 1909-10; Instructor in Physics, University of Pennsylvania, 1910 to date.

The subject of his thesis is: "THE ACTINIUM-URANIUM RATIO IN COLORADO CARNOTITE."

It is generally accepted by investigators in radio-activity that actinium is a branch product from the uranium transformation series. If this theory is true then the activity of actinium should bear a constant ratio to the activity of the uranium with which it is associated in uranium minerals. The actinium-uranium ratio has been determined only once by Boltwood eight years ago and then from only two specimens of one uranium mineral, namely North Carolina uraninite. It was thought very desirable to redetermine this ratio using another uranium mineral namely Colorado carnotite.

The actinium and ionium were separated chemically from the other radio-elements. Their combined activity was measured for about 100 days or until the equilibrium value was reached. The activity due to the ionium was calculated, using a value determined by Boltwood, and deducted from the total activity due to the actinium series and to the ionium. The uranium was separated from the same specimen and its activity measured. The mean value obtained from three separate determinations for the activity of the actinium series was 0.14 times the activity due to the uranium. This value is somewhat lower than that obtained by Boltwood using North Carolina uraninite. The general results indicate that the quantity of actinium in

carnotite is proportional to the quantity of uranium and they are in agreement with the theory that actinium is a branch product of the uranium series.

The Executive Committee certifies that this candidate has fulfilled the requirements prescribed for the Doctor's degree.

IN CHEMISTRY:

Professor McCUTCHEON, *Presenter.*

JOSEPH BENNETT HILL was born in Philadelphia, Pennsylvania. He received the degree of Bachelor of Science in Chemistry from the University of Pennsylvania in 1913. He entered the Graduate School in the fall of 1913 as Harrison Scholar in Chemistry and during the years 1914 to 1916, he was Harrison Fellow in Chemistry. His major and both minors are Chemistry, and he has 17 units to his credit and laboratory work far in excess of the requirements.

The subject of his thesis is: "SOME NEW DERIVATIVES OF TUNGSTEN."

The catalytic action of platinum black in the formation of tungsten hexachloride by the action of chlorine on tungsten has been shown. Reduction of tungsten hexachloride with three per cent sodium amalgam and extraction of the reaction mass with moderately concentrated hydrochloric acid has yielded on crystallization a hydrated dichloride of tungsten, crystallizing in yellow needles. The compound resembles the molybdenum compound $\text{Mo}_3\text{Cl}_6 \cdot \text{HCl} \cdot 4\text{H}_2\text{O}$, prepared by Rosenheim and Kohn. Its formula has been shown to be $\text{W}_6\text{Cl}_{12} \cdot 2\text{HCl} \cdot 9\text{H}_2\text{O}$. It differs from the similar molybdenum, tantalum, and columbium compounds in that it forms no radical which enters unchanged into reactions. From its oxidized alkaline solution fairly stable hydrates of trivalent and quadrivalent tungsten have been obtained.

Professor McCUTCHEON, *Presenter.*

ORLAND RUSSELL SWEENEY was born at Martins Ferry, Ohio. He received the degrees of B.S. in Chemical Engineering and Master of Arts from Ohio State University in 1909 and 1910, respectively. He entered the Graduate School in 1910. His major and both minors are in Chemistry. He has 17 units to his credit and laboratory work far in excess of the requirements.

In addition to his record as a student, Mr. Sweeney has been Instructor in Chemistry at this University since 1910.

The subject of his thesis is: "A SEPARATION OF ARSENIC, ANTIMONY AND VANADIUM FROM TUNGSTEN."

A large number of chemical compounds are known containing the element tungsten combined with the elements arsenic, antimony and vanadium. These bodies are of considerable importance, but the methods for the separation and estimation of the amounts of each constituent contained in them were not entirely satisfactory.

With the object of effecting a more satisfactory separation of the elements they were exposed, in a specially designed piece of apparatus, to a current of hot hydrogen chloride. The arsenic, antimony and vanadium formed volatile compounds, and were completely removed, leaving the tungsten.

Methods for determining the amounts of the volatilized constituents, and of the residual tungsten, were devised, thereby giving a satisfactory scheme for the analysis of these compounds.

The Executive Committee certifies that these two candidates have fulfilled the requirements prescribed for the Doctorate.

IN BOTANY:

Professor MACFARLANE, *Presenter*.

ARABEL WILSON CLARK was born at Doe Run, Pennsylvania. She received the degrees of Bachelor of Arts and Master of Science from the University of Michigan in 1904 and the University of Pennsylvania in 1913. She entered the Graduate School in the fall of 1911. Her major is Botany and her two minors in Zoölogy. She has $25\frac{1}{2}$ units to her credit, $7\frac{1}{2}$ of which were done at Puget Sound Station, Wisconsin and Michigan.

In addition to her work as a student, Miss Clark has been connected with the Germantown High School for Girls since 1911.

The subject of her thesis is: "SEASONAL VARIATION IN WATER CONTENT AND TRANSPIRATION OF LEAVES OF BEECH, WITCHHAZEL, AND WHITE OAK."

During the summer of 1915, the problem was worked out in the hardwoods of a Brandywine farm. Methods employed were those of actual weighing and drying, and semi-weekly tests were made hourly from 8 A. M. to 5 P. M. from May 1 to October 17.

Final results showed that:

- (1) Water content and transpiration differ in different species.
- (2) From 8 A. M. to 5 P. M. there is no variation in water content, but variations in transpiration are regular and constant.
- (3) Water content is greatest in the witchhazel and least in the oak; transpiration is greatest in the beech and least in the oak.
- (4) Water content is highest in the spring, gradually decreases during the summer and rises in the fall; transpiration is greatest in the spring and least in the fall.
- (5) Water content is independent of transpiration, temperature, and relative humidity.

The Executive Committee certifies that this candidate has fulfilled the requirements prescribed for the Doctorate.

IN ZOÖLOGY:

Professor McCLUNG, *Presenter*.

ESTELLA ELEANOR CAROTHERS was born in Newton, Kansas. She received the degrees of Bachelor of Arts and Master of Arts from the University of Kansas in 1911 and 1912, respectively. She entered the Graduate School in the fall of 1912 as Pepper Fellow in Zoölogy. Her major is Zoölogy and her minors are Botany and Anatomy. She has 36 units to her credit, 15 of which are for work done at Kansas.

The subject of her thesis is: "THE SEGREGATION AND RECOMBINATION OF HOMOLOGOUS CHROMOSOMES IN TWO GENERA OF ACRIDIDÆ (ORTHOPTERA)."

The subjects of this study have been two closely related genera of short-horned grasshoppers.

A microscopical study of their chromosomes—the supposed bearers of the heredity determiners—has shown that the chromosomes are constant in number, size and shape in each animal. In size there is the usual double series, one member of each pair being derived from each parent. But contrary to anything that has heretofore been reported these homologous chromosomes may differ in shape, one being a straight rod, the other V-shaped. This peculiarity afforded an opportunity to trace the segregation in the gametes of the chromosomes derived from both parents. It is found that they are distributed according to the law of chance and further a study of ninety-five individuals showed that all possible recombinations of these dissimilar homologous occur at fertilization. This behavior furnishes a physical basis for the operation of Mendel's laws of heredity.

Professor McCLUNG, *Presenter*.

CAROLINE M. HOLT was born in Hartland, Vermont. She received the degrees of Bachelor of Arts and Master of Arts from Wellesley College, 1903, and Columbia University, 1908, respectively. She entered the Graduate School in the fall of 1913 as Pepper Fellow in Zoölogy. She was re-elected to this Fellowship the following year. Her major and one minor are Zoölogy and her other minor is Anatomy. She has 30 units to her credit, 12 of which are for work done at Columbia.

Aside from her record as a student, Miss Holt was an Assistant in Zoölogy at Wellesley College from 1903 to 1907 and an Instructor from 1908 to 1913. The past year she has been connected with the Faculty of Simmons College.

The subject of her thesis is: "TWO SERIES OF EXPERIMENTS TO DETERMINE THE EFFECT OF UNDERFEEDING AND OF EXERCISE UPON THE OLFACTORY BULBS OF THE ALBINO RAT, WITH A STUDY OF SOME OF THE STRUCTURAL ELEMENTS CONCERNED IN SIZE VARIATION IN THE OLFACTORY BULBS OF THE ALBINO RAT."

These experiments were undertaken to determine the effect of altered external conditions upon the olfactory bulbs of the albino rat as compared with the entire brain.

It was found that while the stunting effect of underfeeding upon the brain and bulbs is not so great as upon other parts of the body, it is, neverthe-

less, very marked, and considerably more marked upon the bulbs than upon the brain as a whole. Bulbs of animals with a severe lung infection show the same sensitiveness to adverse conditions.

Exercised rats show a slight increase in brain weight over the control of animals, while the olfactory bulbs of such animals increase from five to eleven per cent more than do the entire brains.

We may conclude that in the case of the albino rat, the olfactory bulb is much more responsive to changes in external conditions than is the rest of the brain.

An histological study was made of fourteen of the bulbs from the preceding experiments to determine if there might be any correlation between the size of the bulb and the number of cells which it contained. The mitral cells were counted in all fourteen bulbs and in three of the bulbs, the number of cells for the entire gray layer was computed. For any given litter, the number of mitral cells is practically constant, with comparatively little variation between litters. The total number of cells for the three bulbs mentioned was very nearly the same though the bulbs showed wide variation in size.

We conclude that the size of the olfactory bulb is correlated with cell size and not with cell number.

Professor McCLUNG, *Presenter*.

PHINEAS WESTCOTT WHITING was born at Lowell, Massachusetts. He received the degrees of Bachelor of Arts and Master of Science from Harvard University in 1911 and 1912, respectively. He was a graduate student at Bussey Institute, Harvard, from 1912 to 1914. He entered this Graduate School in 1914 as Harrison Fellow in Zoölogy, to which fellowship he was re-elected for 1915-16. His major is Cytology and Genetics and Entomology are his minors. He has 66 units to his credit, 38 of which are for work done at Bussey Institute and 4 for work done at Woods Hole in the summer of 1915.

The subject of his thesis is: "THE CHROMOSOMES OF THE COMMON HOUSE MOSQUITO, *Culex pipiens* L."

The method of transmission of hereditary factors from each generation to the next is of considerable theoretical significance. Inasmuch as the germ cells form the connecting link between parent and offspring, it is in them that we must search for the physical basis of heredity.

A study of the germ cells of flies is of especial importance as it is upon this group of insects that the most thorough genetic investigation has been made.

The common house mosquito, belonging to one group of flies, has been chosen for study, as results of previous investigation upon this form have been somewhat conflicting.

The persistence of visible structures in the germ cells is of fundamental genetic importance. The conditions here have been questioned by many.

The investigations have revealed a correspondence between mosquitoes and other forms in their germ cell structure.

The investigation has also shown a concordance between these microscopic conditions and genetic studies in flies.

The present investigation is a part of the general plan of the candidate, which is to show the correspondence between germ cell studies and genetic principles.

The Executive Committee certifies that these three candidates have fulfilled the requirements for the Doctorate.

IN MEDICAL SCIENCES:

Professor PEARCE, *Presenter*.

HARRY DUBIN was born in Russia. He received the degree of Bachelor of Science from the College of the City of New York in 1912. He entered the Graduate School in the fall of 1913. During the past year he held the Robert M. Girvin Fellowship in Medical Sciences. His major and one minor are Physiological Chemistry and Physiology his other minor. He had 27 units to his credit.

The subject of his thesis is: "PHYSIOLOGY OF THE PHENOLS."

An investigation was made to determine (1) the extent to which phenols may be formed under both normal and pathological conditions, and (2) the relationship between the free and conjugated phenols. The following is a brief summary of the results obtained:

A. The phenols are not quantitatively converted into conjugated phenols.

B. The elimination of phenols from day to day is quite constant.

C. After Eck fistula, the free phenols represent as high as 97 per cent of the total.

D. After intestinal obstruction, pancreatic insufficiency, and exclusion of bile from the intestinal tract, there is an increase in free and conjugated phenols, with a decrease in the percentage of free phenols, except in the latter case where there is an increase.

E. Feeding phenol, *p*-cresol, or tyrosine causes in all cases an increased conjugation, and fed in amounts of 1 gram, and 5 grams, respectively, they are eliminated entirely in 24 hours.

F. It is impossible to free the urine entirely of phenols by the use of calomel.

G. The bile appears to have some influence on the conjugating function of the liver.

H. The phenols can be taken as an index of intestinal putrefaction.

Professor PEARCE, *Presenter*.

FLORENCE HULTON was born in Philadelphia, Pennsylvania. She received the degrees of Bachelor of Science and Master of Science from the University of Pennsylvania in 1907 and 1914, respectively. She entered the Graduate School in the Summer School of 1913. In 1914-15 she held a University Scholarship in Medical Sciences and in 1915-16 she was Bennett

Fellow in Medical Sciences. Her major and one minor are Physiological Chemistry and her other minor is Bacteriology. She has 39½ units to her credit, 3 of which are for work done at the Carnegie Experiment Station at Cold Spring Harbor.

In addition to her work as a student, Miss Hulton was Teacher in Science at the Northeast High School for Girls.

The subject of her thesis is: "ON THE FORMATION OF SPECIFIC PROTEOLASTIC FERMENTS IN RESPONSE TO THE PARENTERAL INTRODUCTION OF FOREIGN PROTEINS."

This work was undertaken to investigate the validity of the so-called Abderhalden reaction. This reaction is a digestive action ascribed to the blood developed in response to the presence of some foreign protein in the blood. This protein may be foreign in the sense of a tissue displaced in the body as placental cells during pregnancy, or in the sense of totally different—introduced into the body from outside. Many investigators claim to have induced this reaction while others have failed utterly.

In order to introduce into the circulation of rabbits a foreign protein, we injected into the body of normal healthy rabbits nine different proteins in amount varying from 200 to 800 milligrams, each protein injected three times at intervals of one week. The serum from these supposedly immune rabbits was allowed to incubate with the particular protein in question. Normal control serum was allowed to incubate in the same way. We found that the serum of the injected animals showed no greater digestive power in any case than did the normal serum. The injection of protamine, Bence-Jones protein, casein, milk albumin, soybean, globulin, gliadin, edestin, zein, phaseolin did not call forth the production of new ferments in the blood of the injected animal nor increase the quantity of already existing ferments.

Professor PEARCE, *Presenter*.

EDWARD BELL KRUMBHAAR was born in Philadelphia, Pennsylvania. He received the degrees of Bachelor of Arts and Doctor of Medicine from Harvard University in 1904 and the University of Pennsylvania in 1908. He was Fellow in Research Medicine in the years 1913-15. He enrolled in the Graduate School this past year, electing Research Medicine as his major and Pathology and Physiology as his minors. He has had three full years of research work and laboratory work far in excess of the requirements. Several of the results of his researches have already been published.

In addition to his record as a student, Dr. Krumbhaar has been Instructor or Associate in Medicine in the Medical School since 1911.

The subject of his thesis is: "TRANSIENT AURICULAR FIBRILLATION."

This thesis is a study of the pathological physiology of the heart by means of the Einthoven string galvanometer.

Four cases are described in which the transition of the cardiac mechanism was observed from normal rhythm to auricular fibrillation and back again. In two others, the development of permanent auricular fibrillation was observed.

These have been compared with similar cases in the literature, and the following conclusions drawn.

The change from normal rhythm to auricular fibrillation occurs in three well defined groups:

1. In the course of an acute infection, such as pneumonia or septicemia, or of an acute intoxication, such as alcohol or hyperthyroidism or possibly from other temporary causes one or more attacks of fibrillation may occur for several days, but disappear permanently when the source of intoxication is removed. In this group permanent myocardial damage is probably not present.

2. In another group, probably always associated with underlying myocardial degeneration, paroxysms lasting from a few minutes to many hours or even days, may be induced by a great variety of causes and occur over a period of many years.

3. In a third group, in which the signs of valvular or myocardial disease are more prominent, the original change from normal rhythm to fibrillation is apt to be permanent, or at least to be preceded only by a few transient periods.

Dr. PEARCE, *Presenter*.

ROBERT CECIL MORAN was born in Hartford, Connecticut. He received the degree of Bachelor of Philosophy from Yale in 1911. He was a graduate student at Yale during the year 1911-12 and at Pasteur Institute and University of Paris in 1913-14. He entered the Graduate School in 1914 with Physiological Chemistry as his major and Bacteriology and Organic Chemistry as his minors. There are 27½ units to his credit, 5 of which are for work done at Yale and 6 for work done at the University of Paris.

The subject of his thesis is: "THE METABOLISM OF URACIL, THYMINE AND CYTOSINE."

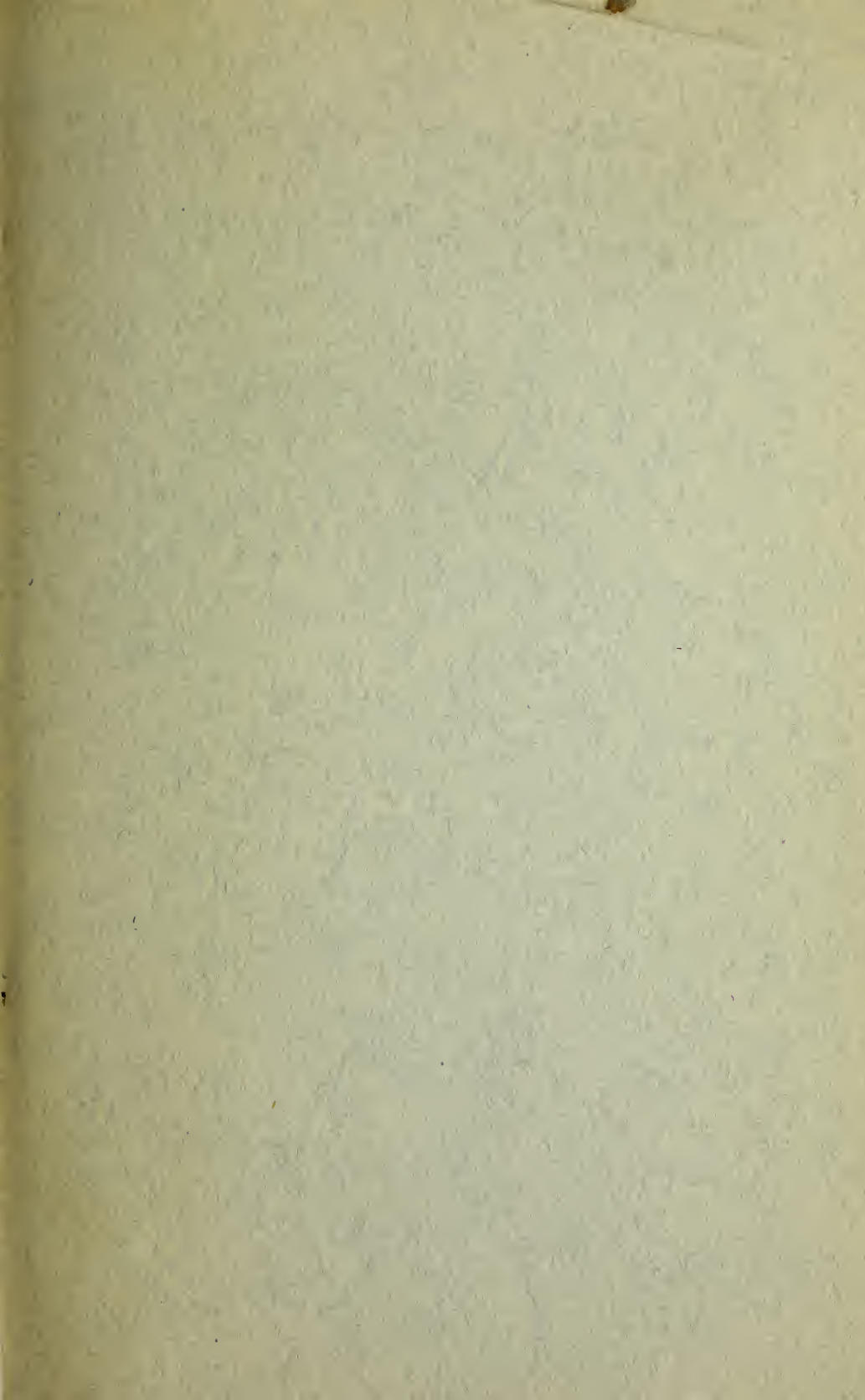
Nucleic acids in the form of nucleo-proteins are widely distributed in nature, occurring chiefly in the nuclei of animal and plant cells. Depending upon the nature of the source, nuclei acids are classified as animal or plant nucleic acids.

Uracil, thymine and cytosine are the pyrimidine derivatives which occur as constituents of typical nucleic acids. Uracil and cytosine occur in plant nucleic acids while thymine and cytosine occur in animal nucleic acids.

The widespread occurrence in nature of these pyrimidines led to investigation of their rôle in metabolism. In the first investigation, made by Steudel, data were obtained which indicated that these pyrimidines were destroyed in the organism. The results obtained in a subsequent investigation by Mendel and Myers indicated that the pyrimidines were stable in the organism. These contradictory data warranted further investigation of the rôle of the pyrimidines in metabolism.

The uracil, cytosine and thymine, for use in this present investigation, were synthetically prepared according to the described syntheses. Studies on the behavior of these pyrimidines in the organism of the dog were made. The results obtained indicate that uracil, cytosine and thymine, when introduced into the organism, are immune from the action of physiological agents.

The Executive Committee certifies that these four candidates have fulfilled the requirements prescribed for the Doctorate.





3 0112 105897984